DWR NEWS | *People*

FALL 2005

Climate Conditions

Maury Roos, Chief Hydrologist of DWR's Flood Management Divison, works part-time providing DWR advice on flood forecasting, hydrology, water supply, snowmelt forecasting, and staff meteorology.

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Water Planning in the Delta—
A Case Study in Management Adaptability

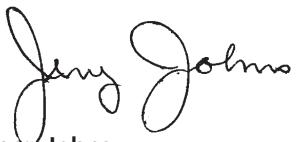
The concept of adaptive management has worked its way into the interface between water and biological sciences. Adaptive management allows water and biological managers to modify environmental conditions, develop data on the effects of these changes and then adapt operations or standards to reflect the knowledge gained. This works well when the system being evaluated is staying relatively constant. However, recent events in the Bay/Delta Estuary have shown us that this system has changed markedly in the last few years both from an ecological point of view but also from a funding and institutional perspective. The issue now is not so much adaptive management but management adaptability to respond to these changes. Can water and fishery managers change directions as fast as the political and ecological changes around them and adapt their approaches to problem solving fast enough to resolve conflicts?

CALFED has been the institutional pillar upon which we have built today's interrelationships among agencies and programs to protect and enhance both environmental conditions in the Bay/Delta Estuary and to provide the water supply reliability for those who rely on water developed from the Bay/Delta watershed. However, the funding for the CALFED programs has been less than expected and this program is undergoing an extensive review and possible "refocusing" to evaluate its successes and to hone its mission to concentrate on resolution of Bay/Delta conflicts. Most importantly, CALFED will attempt to develop appropriate user contributions to the CALFED Programs so that it has sustainable funding.

In the past three years there has been a decline in the relationships between the abundance of many open water fish inhabiting the upper Bay/Delta Estuary and the ecological factors that have historically affected their abundance. An unexpected decrease in abundance of these pelagic organisms has sparked an intensive effort by agency, university and outside scientists to determine the cause or causes. Making water management decisions in light of this uncertainty requires us to be pragmatic and cautious. In addition, the sustainability of the current Delta levees infrastructure has been brought into question by last year's Jones Tract levee failure, funding issues and by scientists studying the long-term subsidence, earthquake probability and prospects for sea level rise due to global warming. Given these questions, the State needs to reevaluate what the Delta will look like in the next 50 to 100 years and develop a strategic plan towards that vision.

Water planning in general in California has taken a new shift with the release of the Draft California Water Plan this past spring. Two new initiatives, Integrated Regional Water Management and improving the State's water management system, build upon the principles of increased water use efficiency, improved water quality and environmental stewardship. A Water Resource Investment Fund is needed to help meet California's water investment strategies for the future. A partnership with funding is needed between local and regional entities and the State to meet California's growing water needs.

DWR is in the center of these changes. We all need to recognize these changes and help guide the Department and the State through this time of rapid change. Exciting times.



Jerry Johns
Deputy Director
Water Resources Planning and Management

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Please send questions, comments, or story ideas to:

DWR NEWS/People
Public Affairs Office
1416 Ninth Street, Room 252-21
Sacramento, CA 94236-0001

Email:
dwrpeople@water.ca.gov

Phone: (916) 653-8743

DWR NEWS/People's Web site is http://www.publicaffairs.water.ca.gov/dwrnewsletter/

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As the start of the rainy season approaches, it is appropriate that this issue cover analysis of past and future climate conditions, focusing on the status of the science in these areas. In a perfect world, climatologists and meteorologists would be able to furnish accurate, detailed predictions of long-term temperature and rainfall patterns, allowing water managers to plan accordingly. Unfortunately such information is not available, and water managers are forced to use whatever tools may be available to assist in making decisions with less than perfect information.

Water project operation and planning have traditionally been based on analysis of the historical period of measured hydrologic data, which provides no more than about 100 years of usable information. Paleoclimate information, typically from tree-ring analyses, can be used to reconstruct streamflows prior to the historical record, important background for evaluation of water projects under sustained severe drought conditions. Such information is particularly important in major river basins like the Colorado, where there is a high level of dependence on a fully allocated resource. However, knowledge of past climate variability alone may not be sufficient, as human-induced climate change may affect future conditions of interest to water managers. In particular, data collected from Sierra Nevada watersheds have been cited as the canary in the coal mine with respect to conditions that water managers may face in the future.

RECORDED IN THE RINGS

The application of tree-ring data to sustainable water management in California and the West

by Jeff Lukas [1] and Connie Woodhouse [1,2]

Water managers in the Western U.S. have usually relied on the gaged records of streamflow to anticipate likely future variations in water supply, but these records are simply too short (20 to 100 years) to capture the full range of flow variability. To provide a longer window on past variability, water managers at California Department of Water Resources (CDWR) and elsewhere in the West have been turning to tree-ring scientists, or dendrochronologists. The ring-widths of moisture-sensitive trees are used to reconstruct streamflow 300 years or more into the past. These multi-century reconstructions are likely to show more of the full range of variability, including the extreme droughts of most concern to water management.

[1]*INSTAAR, University of Colorado, Boulder*
[2]*NOAA/NCDC Paleoclimatology Branch, Boulder, CO*

Background

The first studies to examine the relationship between tree growth and streamflow in the Western U.S. were carried out in the 1930s and 1940s. By the mid-1970s, researchers at the University of Arizona had developed a 440-year reconstruction of annual streamflow for the Colorado River at Lee's Ferry. This highly influential study showed that there had been droughts on the upper Colorado—most notably in the late 1500s—that were both longer and more intense than those of the 1930s and 1950s. It also showed that the first two decades of the 20th century—the period on which the Colorado River Compact was based—was probably the wettest 20-year period in over four centuries.

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Global Warming's Possible Impact on CALIFORNIA'S WATER RESOURCES

by Maury Roos

Photos by DWR Photography Unit

In recent years, evidence has continued to accumulate that global climate change will have significant effects on California's water resources. Global warming has the potential of affecting a wide variety of water resources elements. These include water supply, hydroelectric power, sea level rise, more intense precipitation and flood events, water use and water temperature changes. Causes can be natural or of human origin. A major cause of the expected change is increasing amounts of greenhouse gases, such as carbon dioxide, in the atmosphere as a result of human activities. Other significant greenhouse gases are methane, nitrous oxide, halocarbons (like freon and its replacements) and, of course, water vapor itself.

The earth already has a strong greenhouse effect, about two-thirds due to water vapor and 25 percent due to carbon dioxide. Without this, average world temperatures would be around 0 degrees Fahrenheit instead of the 60 degrees we enjoy. The concern is that increases in greenhouse gases will change the radiation balance, leading to a rise in global temperatures this century. A rise of about 1°F has been estimated for the 20th century, partly of natural causes, as a rebound from the "Little Ice Age" of preceding centuries. In 2000, an international group of scientists projected a global temperature increase by year 2100 of about 3°C (5°F) with a range from 1.4° to 5.8°C.

Above: *Maury Roos explains Global warming's potential impacts on other parts of the nation.*

Carbon dioxide in the atmosphere has been increasing slowly. The measurements atop Mauna Loa, Hawaii, were started by world renowned scientist Dr. Charles David Keeling of Scripps in 1958 and are the longest continuous record of atmospheric CO_2 concentrations in the world. (Dr. Keeling died in June 2005 at the age of 77; his monitoring work is being continued by Dr. Timothy Whorf.) The annual cycle is caused by northern hemisphere vegetation uptake during the growing season. The average rate of increase the past several decades has been 1.6 ppm per year. The source is mostly from burning fossil fuel. The USA's estimated share of world CO_2 emissions in year 2000 was 23 percent. China was next at 11 percent.

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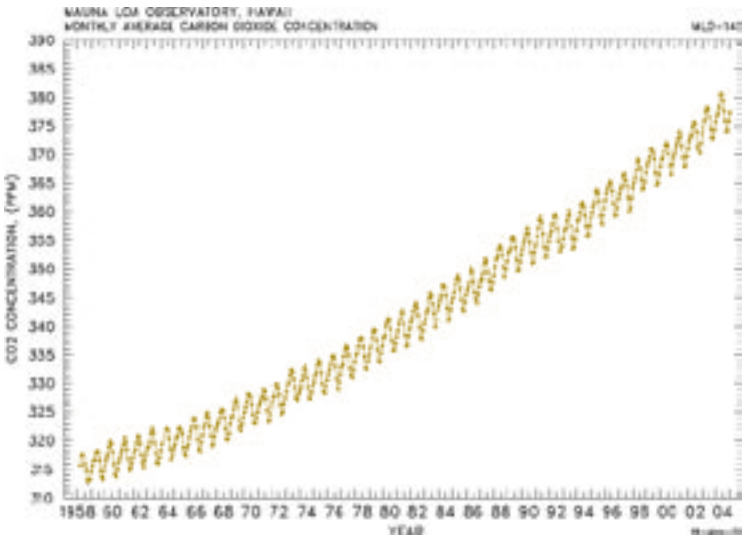
Atmospheric Carbon Dioxide Concentration as Measured at Mauna Loa, Hawaii

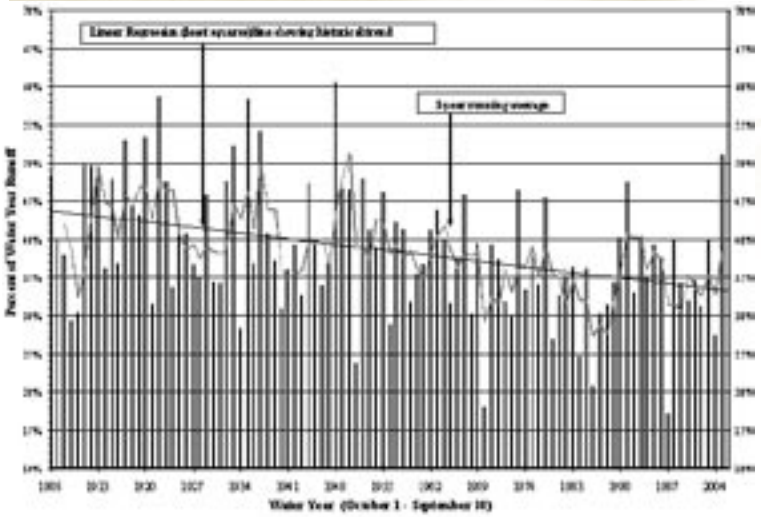


Source C. D. Keeling and T. P. Whorf, Scripps Institution of Oceanography, via C. D. I. A. C., Oak Ridge Nat. Lab.

Significant changes in climate during this century are projected due to global warming. These changes are expected to affect many of our water resources systems. Many of the more important changes would arise from temperature increases, which would raise mountain snow elevations (by about 500 feet per degree Celsius) and change mountain watershed runoff patterns—more in winter, less in spring and early summer snowmelt, thereby affecting reservoir operations. Other consequences include sea level rise, which could adversely affect the Sacramento-San Joaquin Delta, a major source of water supply for California, possibly more extreme precipitation and flood events, changes in water use for crops and wildlands, and water temperature problems for anadromous fish.

Some of these changes appear to be happening. The fraction of water year runoff coming during the April through July traditional snowmelt season, although highly variable from year to year, seems to have been decreasing during the past 50 years. This effect is more noticeable in the lower elevation northern Sierra than the higher elevation southern Sierra. The next chart shows the percentages for the Sacramento River system, the four major rivers of the Sacramento River region (Sacramento River near Red Bluff, and Feather, Yuba and American Rivers). This current water year, 2005, has bucked the trend with a 51 percent fraction based on current late season forecasts. This shift, if it continues, will make it more difficult to fill our major foothill reservoirs because of less snowmelt in the late spring. Lower reservoir levels could reduce dry season water supply and, because of lower head, reduce hydroelectric power production.

Sacramento River April-July Runoff in Percent of Water Year Runoff

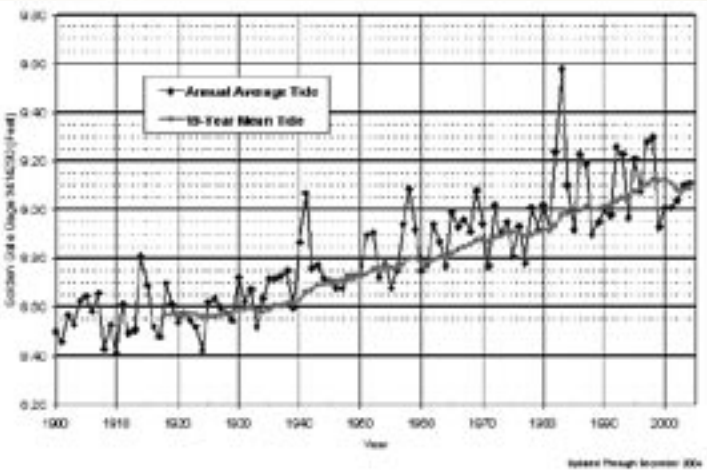


A second major impact is sea level rise, which would affect many low areas along the coast. But the major water systems impact would be in the Delta. There the problem would be two-fold: (1) problems with the levees protecting the low lying land, much already below sea level; and (2) increased salinity intrusion from the ocean, which would degrade fresh water transfer supplies pumped at the southern edge of the Delta or require more fresh water releases to repel ocean salinity. The international science panel (Intergovernmental Panel on Climate Change), in their year 2000 report projected sea level rise by 2100 to range from about 0.3 to 3 feet, with a median of about 1.6 feet. During the past 75 years or so, the measured rate of rise at the Golden Gate tide gage has been about 0.7 feet per century. Much of this is believed to be from melting temperate zone glaciers, particularly in southern Alaska.

The chart depicts the average annual sea level stages at the Golden Gate, which is measured by the National Ocean Service. It is possible that tectonic earth movements may be influencing

the gage, although the 20th century increase is in line with other world tide gages. It takes 19 years to go through a complete lunar cycle, which is the reason for the 19-year average line. The last decade shows a slowing of the rate of rise; this may be temporary.

Golden Gate Annual Average and 19-year Mean Tide Levels



More extreme precipitation events generally go along with increasing temperatures. This is the kind of information in the form of statistics on rainfall depth, duration, and frequency that go into storm drainage design. The problem may be compounded in the high elevation river watersheds of the Sierra Nevada. Here, with higher storm snow lines, a greater fraction of the watershed could be producing direct rain runoff, with larger flood volume.

There are likely to be changes in water use as well as water supply. Water consumption changes are likely to be small, but because so much land is involved, amounts could be very significant. Generally, a slightly warmer climate with less frost and a higher atmospheric concentration of carbon dioxide is regarded as beneficial to many food crops. As a rule, plant evapotranspiration increases with temperature. Higher carbon dioxide levels, however, reduce water consumption (at least in laboratory tests), and seem to increase yield on some crops. Some weeds, including water weeds, may thrive better too. Most likely, the higher water consumption due to warmer temperatures will only be partly offset by the carbon dioxide-based reductions. Thus, the net effect could be slightly higher agricultural and landscape water requirements. For some annual crops, it may be possible to change the planting season a few weeks which may result in no net change for that crop.

Warmer water temperatures could be of considerable concern in managing salmon and steelhead fisheries. Warmer air temperatures will make it more difficult to maintain rivers cold

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Maury Roos, a DWR retiree since 2000, is currently Chief Hydrologist (part time) with the California Department of Water Resources' Division of Flood Management in Sacramento.

Maury worked 43 years for DWR as a water engineer. As a Retired Annuitant, he provides advice on flood forecasting, hydrology, water supply and snowmelt forecasting and staff meteorology. Related topics include floods and droughts, global warming, and weather modification, and participation in elements of the California Water Plan Update (Bulletin 160). For years he has been attempting to track climate change issues, as well, especially as they relate to water supply in California.

He received a BS degree in Civil Engineering from San Jose State University in 1957.

In September of 2005, Maury went to the International Commission on Irrigation and Drainage Congress in Beijing, China. He presented a workshop paper on Northern California flood management and served on two working group meetings.

Global Warming continued from page 7

enough for cold water fish, including anadromous fish. With reduced snowmelt, existing cold water pools behind major foothill dams are likely to shrink. As a result, river water temperatures could warm beyond the point tolerable for salmon and steelhead that currently stay in these rivers during the summer and early fall. Some reservoirs have multi-level outlets to help control water temperatures. These kinds of outlets may have to be installed on other structures.

These are five of the potential major effects of global warming on water resources in California. There are undoubtedly others, such as a longer fire season in the mountains. Impacts on the Colorado River are of concern to California as well. That basin is not so vulnerable to changing runoff patterns with less snowmelt because of ample storage on the main stem. However, its total runoff is quite sensitive to small changes in average precipitation. One would expect warmer temperatures to dry out the water-producing region of its vast watershed somewhat sooner than today.

The Department of Water Resources has given significant space and discussion of climate change in the most recent Bulletin 160 "California Water Plan Update." During the next few years, Department planning staff will be trying to develop a better quantitative sense on what climate change will do to water resources systems operation and what measures may be useful in providing for all California water needs in a world with a warmer climate.

Interest in climate change and greenhouse gas emission reductions at the State level led Governor Schwarzenegger to issue an executive order in June 2005, setting goals for reducing California emissions by 2010 to year 2000 levels and by 2020 to 1990 levels. He also asked for a report by January 2006 on impacts to California of global warming, including impacts to water supply, public health, agriculture, the coastline, and forestry and reporting on mitigation and adaptation plans to combat these impacts. Several DWR people, primarily from the planning, modeling and hydrology groups, will be involved in helping with the report, which is assigned to the Secretary of the California Environmental Protection Agency.

Recorded in the Rings continued from page 4

During the 1980s and 1990s, many new moisture-sensitive tree-ring chronologies were collected from Pacific Coast states, creating new opportunities for reconstructing streamflow in this region. In the mid-1980s, **Christopher Earle** and **Harold Fritts**, in work funded by the CDWR, developed 420-year reconstructions of four gage records in the Sacramento River Basin. In the late 1990s, in another CDWR-funded study, **David Meko** of the University of Arizona and others extended Earle's work, producing a reconstruction of Sacramento River flow back to AD 869. They found, as Earle did, that the six-year 1930s drought was severe even in the context of the tree-ring record. But there were many reconstructed droughts both shorter and longer than six years, particularly before 1400, that appear worse than those since 1900. Work by **Hugo Loaiciga**, **Joel Michaelsen** and others at the University of California that assessed the statistical characteristics of drought based on tree-ring reconstructions of streamflow in California and the Colorado River basin was also done during this period.

Tree-ring research in the Colorado River basin has also progressed. **Connie Woodhouse** of NOAA and the University of Colorado, along with David Meko, and **Stephen Gray** of the USGS, have just used a dense network of new tree-ring records in Colorado, Wyoming, and Utah to develop a new reconstruction of the Colorado River at Lee's Ferry.

Developing the reconstructions

In most parts of the West, annual tree growth closely reflects the amount of soil moisture at the onset of the growing season, which is controlled mainly by winter-spring precipitation. Trees that provide the best information about streamflow variability—those particularly sensitive to variations in moisture—include species such as ponderosa pine, western juniper, and blue oak, growing in open stands on dry sites where soil moisture storage is minimal.

A tree-ring reconstruction of streamflow is developed from multiple tree-ring records, or chronologies. A tree-ring chronology is a time-

The patterns of wide and narrow growth rings of a pinyon pine (upper core) and Douglas-fir (lower core) record fluctuations in moisture. [Image by Jeff Lukas]

series of annual values derived from the ring-width measurements of 10 or more trees of the same species at a single site. To create a tree-ring chronology, cores from the sampled trees at each site are crossdated (patterns of narrow and wide rings are matched from tree to tree) to account for missing or false rings, so that every annual ring is absolutely dated to the correct year. Then all rings are measured to the nearest 0.001mm. After age-related trends in growth are statistically removed, the ring-width values from all sampled trees for each year are averaged to create a time series of annual ring-width indices: the chronology.

Once a gaged natural flow record of interest is selected for reconstruction, chronologies from the region around the gage are calibrated with the gage record to form a reconstruction model. The reconstruction model is then validated by testing it on a portion of the gage data that was withheld from the calibration process. Since there is always some portion of the variability in the gaged record that the trees do not explain, various statistics can then be used to describe the uncertainty inherent in the reconstruction.

Other proxies of past climate confirm and complement the information contained in the tree-ring reconstructions. Oxygen isotope ratios in lake bottom sediments (e.g., in Mono Lake) have been used to reconstruct the water balance in the lake, and thus changes in the regional climate. Dead trees rooted at the bottom of Lake Tahoe and other Sierran lakes have been radiocarbon-dated, indicating when the lake was at a low stand caused by sustained drought. But only tree rings have the combination of annual resolution, dating to the exact calendar year, and high sensitivity to moisture that allows for direct reconstruction of annual streamflows.

Applying the reconstructions to water management

Reconstructed streamflows have been used by water managers in a number of ways to help guide planning. They can be considered qualitatively to provide a broader perspective on the flow variability seen in the gaged record. They can be used directly as inputs into water supply models to test the ability of their systems to meet demand under the broader range of flow conditions represented by the reconstructions. They can also be used to generate probabilities for different drought scenarios, and to construct a "design drought" used as a worst-case scenario in planning.

*Climatologist **Mark Losleben** cores a ponderosa pine growing out of a granite outcrop near Lake George, Colorado. The core from this tree contains a multi- century record of moisture variability that can be used to reconstruct streamflow. [Photo by Connie Woodhouse]*

Ongoing projects

Several collaborative projects are either ongoing or just starting up. David Meko and **Katherine Hirschboeck** of the University of Arizona have been working with water managers with the Salt River Project (Arizona), using tree-ring reconstructions of streamflow to assess how often the Colorado and Salt-Verde basins have been in simultaneous drought. The Salt River Project relies on water from both basins.

Meko is also working on a project led by **David Stahle** of the University of Arkansas, and funded by CALFED, to use blue oaks to reconstruct streamflow and precipitation in the Central Valley of California. Meko and Woodhouse are also collecting remnant material (stumps and logs) at sites in the Colorado Basin to extend the Lee's Ferry reconstruction further back into the past. Researchers from the University of Colorado, University of Arizona, Scripps/USGS, and NOAA are planning follow-up activities stemming from a workshop for Colorado River water managers and dendrochronologists that was held in Tucson in May 2005.

Where to Get Streamflow Reconstruction Data

http://www.ncdc.noaa.gov/paleo/recons.html#hydro
http://www.ncdc.noaa.gov/paleo/treering.html
http://www.ncdc.noaa.gov/paleo/streamflow/

Open House AT McCUNE STATION

by Elizabeth Scott

Photos by DWR Photography Unit

Bearing the name of an honored retired annuitant, the Bill McCune Real-Time Water Quality Monitoring Station is up and running. One of three "real-time" drinking water quality stations in an extensive monitoring system, the McCune Station, just downstream from the historic Vernalis Station, provides vital information for maintaining good water quality in the Delta, important to public health and the economy of the State.

Located on the San Joaquin River, south of Tracy and just east of the legal boundary of the Delta, the station was formally dedicated in April during a picnic lunch honoring **Bill McCune**, who after a 46-year career, is described as the "cornerstone" of water quality monitoring for the Department of Water Resources.

Rich Breuer, Chief for Environmental Water Quality and Estuarine Studies, says McCune was vital to the project. "Bill loves science," says Breuer. "He started working for the State when water quality became an issue. He knows the Delta like the back of his hand. This is Bill."

Above: *Bill McCune, with the legal boundary of the Delta in the distance behind him, holds the plaque which now permanently marks the real-time monitoring station named in his honor.*

The McCune Station monitors levels of total organic carbon (TOC) and dissolved organic carbon (DOC) in Delta waters. TOC and DOC are growing concerns for drinking water quality. When river water is disinfected for use as drinking water, the process, if levels are miscalculated, can form carcinogenic compounds, suspected cancer-causing elements. By monitoring the actual real time levels of TOC and DOC, the Department can now better inform water contractors of the make-up of the water which is flowing their way, allowing contractors to more accurately determine the amount of disinfectant needed and decrease any risk of creating the dangerous compounds.

Cutting-Edge Technology Stirs National Interest

During the dedication picnic, attendees toured the shelter on the river and watched company representatives from the Dionex Corporation install a process analyzer. This analyzer will add

bromide, chloride, sulfate, and nitrate to the list of constituents monitored at the station. The Dionex-800 Process Analyzer for real time water quality monitoring makes the McCune Station a cutting edge, high-tech system that water experts across the country are expected to watch with great interest and anticipation. When collected, the data is sent by phone line for analysis, eliminating the need for in-person visits and collections by DWR personnel.

TOC/DOC data has previously been collected as 'grab' samples for laboratory analysis on a weekly or monthly basis. CALFED determined there was a need for monitoring TOC/DOC in a real time network and provided the grant for design and construction of the McCune station. "This project wouldn't have been possible if we hadn't gotten the CALFED grant," said Breuer.

A Community Effort

Determining the best position on the San Joaquin River and negotiating access to private property was a two-year process for Project Manager **Lori Weisser**, who retired in 2005 after 24 years of State service. Weisser provided extensive outreach to the members of the San Joaquin River Club who own the land on which the McCune station is now accessed. The residents were initially hesitant to provide entry onto their land, but now praise Weisser for her persistence and patient consultation to ease their fears. "The way that Lori came out and spoke with us, and the education we received about the benefit we're providing everyone in the State and the River Club in particular, made all the difference," said **Jerry Cutter**, President of the San Joaquin River Club. Board Trustee **Bill Fisher** said residents are proud of their contribution. "Anything we can do to make the water quality better, we're all for it," he said following the dedication festivities.

The McCune Real-Time Water Quality Monitoring Station is located at The San Joaquin River Club, south of Tracy.

*Division of Engineering staff who worked on McCune Station included Left to Right (Front Row) **Sharon Lopez, Julie Lee, June Pascual,** and **Thomas Higgins**. (Back Row) **Artemio Tapia, Ronald O'Quinn, William Sutliffe,** and **Jim Peddy**. (Not in Photo) **John Berringer**.*

A True "Pioneer"

After the picnic and dedication remarks, McCune, an Iowa native who came to California in the early fifties, beamed with pride and expressed a bit of amazement. "It was a great day," McCune said. "I haven't had this much attention in a long time."

Breuer says the Department's appreciation of McCune is best expressed in a letter addressed to McCune from DWR retiree **Rick Woodard**. Woodard, the first DWR Branch Chief of the Municipal Water Quality Program, worked closely with McCune from the program's inception until McCune's retirement and was intimately familiar with his extensive contribution to the program's growth and success. The letter was read during a surprise party Breuer threw for McCune to announce the dedication. "I believe it is safe to say no individual has contributed more to water quality science in the Department of Water Resources," wrote Woodard. "You were a pioneer in numerous limnological investigations of Northern California lakes and reservoirs, and your efforts established baseline water quality conditions that continue to be valuable for assessing the ecological health of these resources. More recently, your participation in the Municipal Water Quality Investigations Program has made a significant contribution toward assuring water supplied to two-thirds of California's population is safe to drink. However, while your scientific work has been highly valuable in its own right, I believe your most important contributions have been as a teacher, mentor, and team member."

Ribbon-Cutting at DWR-built Lake Oroville Forebay

AQUATIC CENTER BOATHOUSE

by Don Strickland

Above: *Kayakers paddle in the Lake Oroville Forebay near the new Aquatic Center boathouse.*

Photos by Don Strickland

A quick snip of scissors at a ceremonial ribbon-cutting event signaled the official opening of a new 7,500 square foot boathouse at the Lake Oroville Forebay Aquatic Center on June 24.

DWR paid for the all-metal building, a $325,000 structure that will be the main storage site for dozens of kayaks, canoes, sailboats, and other watercraft and accessories at the fast-developing recreational facility just off Highway 70 at the north end of Oroville. DWR expects to receive a $137,000 grant reimbursement from the Land and Water Conservation Fund.

Operated by the Associated Students of California State University (CSU), Chico under a contract with the California Department of Parks and Recreation (DPR), the Forebay Aquatic Center is a collaborative effort of CSU, Chico, The Associated Students of CSU, Chico, DPR, the Department of Boating and Waterways, and DWR.

The new boathouse is just one of many area enhancements sponsored by DWR as the Agency works toward the first renewal of its initial 50-year Lake Oroville Facilities license with the Federal Energy Regulatory Commission (FERC).

Oroville Field Division Engineering Branch Chief **Bill Cochran** coordinated the boathouse project from start to finish.

"We first started working on it about this time last year (June 2004)," said Cochran. "Then, things really started accelerating around December when we put together the contract, sent it out to bid and got our contractors onboard. Things really took off from there. The building itself went up very rapidly in a period of about 30 days after the site was graded and the foundation was placed."

***Joel Robinson**, CSU Associated Students Aquatic Center Manager, holds ceremonial scissors at the June 24 boathouse ribbon-cutting event. Standing next to Robinson is OFD's **Bill Cochran**.*

The new boathouse is just one of many area enhancements sponsored by DWR as the Agency works toward the first renewal of its initial 50-year Lake Oroville Facilities license with the Federal Energy Regulatory Commission (FERC). During public meetings held under the years-long Alternative Licensing Procedures approach, water-based recreational facilities were identified as being among the most important and desired public assets. The new Forebay boathouse was included in DWR's FERC license application.

A number of Oroville area dignitaries attended the boathouse ribbon-cutting.

Oroville City Councilman **Bob Sharkey**: "I think it's great. It's been nice to watch the aquatic center get built and it's nice to see it fit in with all the other recreation components DWR has put together in the last few years. You guys are doing a great job of putting this together and I think it fits well and is going to be really good for Oroville and for people who like to tour and come out this way. I can see a lot more families wanting to come out here and experience this."

Butte County Supervisor **Bill Connelly**: "This is a wonderful setup out here. It's providing access to kayaks, canoes, paddleboats, paddlebikes…and, hopefully, as it progresses, it'll expand and it's going to be a wonderful recreation opportunity for local residents as well as communities that surround the area."

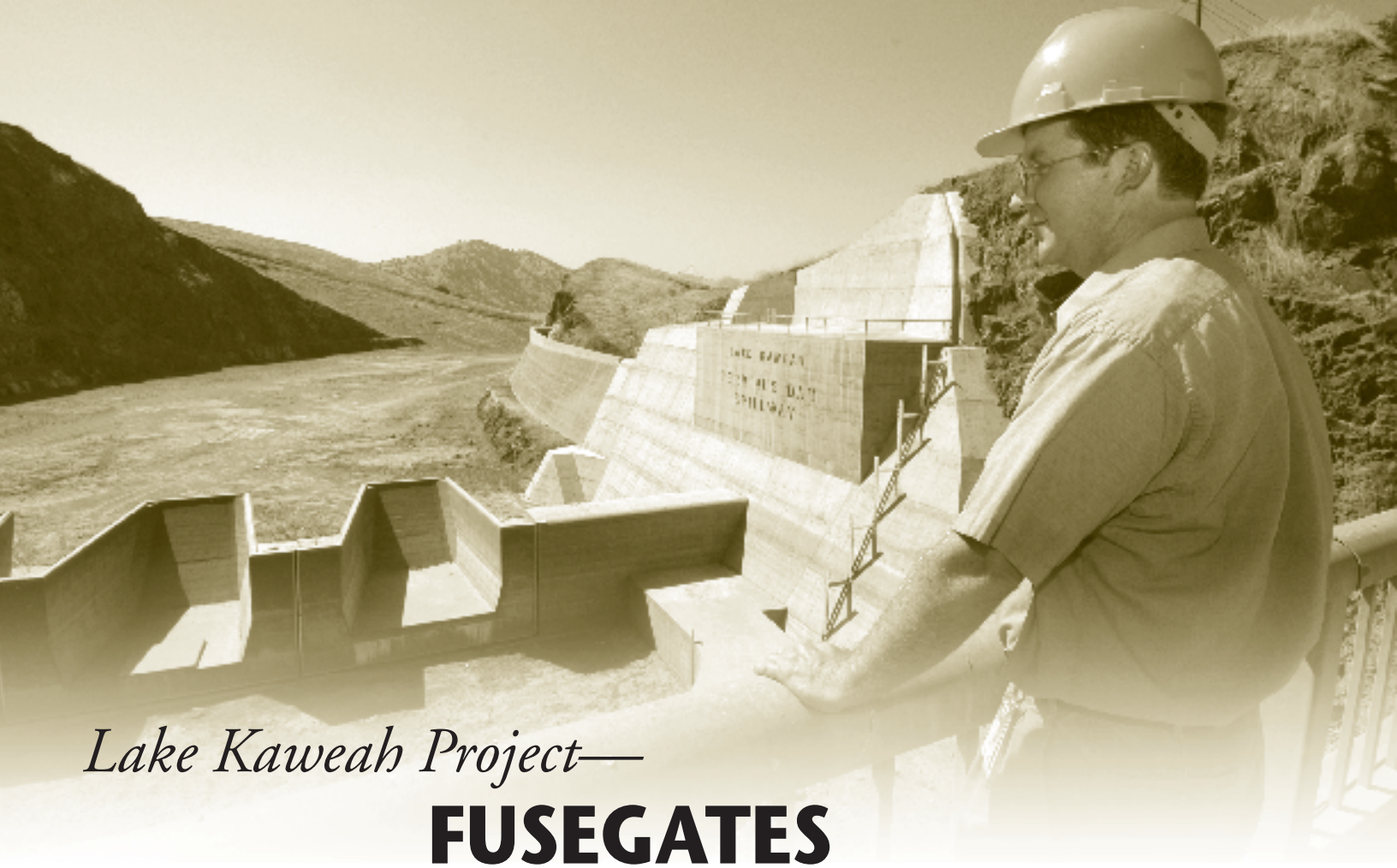
Oroville Area Chamber of Commerce Executive Director **Tao Stadler**: "We're very happy to see this come to Oroville. We've got so much water space here that any time you don't see one of our bodies of water with a ton of people on it, it makes us sad. So this allows us to get a lot more people on the water and lets them remember that Oroville is the best destination in Northern California for water recreation."

Lake Oroville Visitor's Center Tour Guide **John Ford** looks at the expanding Forebay Aquatic Center as an important part of the area's allure:

"As I take people and show them what we have to offer," said Ford. "They're going to see an aquatic center that has the potential to become a very classy and wonderful operation in addition to our other recreation facilities. The sailboats that they run out here, with their colorful sails, will be a visual attraction on the forebay and I think that's going to be a draw to the facility."

Cochran was pleased that the boathouse was completed in time for the 2005 summer season. "It's great," he said with a big smile. "I know the Chico State Associated Students program is prepared for a large and expanding visitation this summer and the boating and paddling equipment rental opportunities are unprecedented for this area."

Some of the watercraft and accessories located at the new Aquatic Center boathouse.



Lake Kaweah Project— FUSEGATES

by Annie Parker

Photos by DWR Photography Unit

Reoccurrences of damaging floods to downstream communities and agricultural land as well as groundwater overdraft problems created a need for the dual-purpose enlargement project at Lake Kaweah, located in the San Joaquin Valley.

Lake Kaweah was created in 1962 upon completion of the construction of Terminus Dam. The lake is located approximately 20 miles east of the City of Visalia and drains a 560 square mile area of the Sierra Nevada Mountains, including Sequoia National Park. The lake is owned and operated by the U.S. Army Corps of Engineers.

The fusegates constructed at Lake Kaweah are the first fusegates ever built by the Corps and they are currently the largest fusegates in the world. Total cost of the project was approximately $56 million.

***Above: Robert Crane**, DWR's Lake Kaweah Enlargement Project Manager, looks at the Lake Kaweah project.*

***Below:** Downstream face of the fusegates.*

Initial Project Design

The U.S. Army Corps of Engineers originally contacted the Reclamation Board with the fusegate project in 1996 after the Corps conducted their feasibility study. The Reclamation Board officially signed the project agreement with the Corps in 2001 as one of the nonfederal sponsors. The Kaweah Delta Water Conservation District was the other nonfederal local sponsor.

Intake conduit of the fusegates.

The fusegate design was selected in the Corps' revised Decision Document of May 1999, as opposed to the ogee weir design specified in the Corps' 1996 Feasibility Study.

"When the Decision Document was released, it was estimated that the ogee weir would cost $30,575,000 due to the additional excavation required, compared to the $8,250,000 for the fusegate design. Thus, the fusegate design was selected based on the expected cost savings," said **Robert Crane**, the DWR Lake Kaweah Enlargement Project Manager with the Division of Flood Management.

The Division of Dams and Safety (DSOD) participated in the design and review of the fusegate project after the Reclamation Board signed the agreement. DWR's Division of Flood Management (DFM) had responsibility for acquisition, planning and project management. The Corps paid approximately 64 percent of the total project costs; the remaining 36 percent was split between the two nonfederal sponsors, DWR at 25 percent and 11 percent by Kaweah Delta Water Conservation District.

Construction began in 2002, and the fusegates were completed in 2004.

What are Fusegates?

Fusegates were invented in 1989 as a simple and safe system to increase reservoir storage and spillway capacity. The fusegate is a monolithic structure consisting of three main components: a bucket, a base, and an intake well connected to the chamber in the base. Fusegates are designed to tip backwards and tumble downstream when a certain pool elevation is reached in the reservoir.

As the flow from the intake well exceeds the flow out of the drain holes in the bottom chamber, the water in the well increases. This results in increased pressure in the bottom chamber that exerts an uplift force on the gate. The uplift force causes the gate to become unstable and at a predetermined depth of water in the well, the fusegates tilts by rotating about its downstream edge. The crest of the intake well for each fusegate is set at a different elevation so that the fusegate tips at a predetermined discharge and water-surface elevation in the reservoir.

Fusegates that have been previously constructed have been on a much smaller scale, and usually constructed of metal.

The Terminus Dam Fusegates

The fusegate design was selected by the Corps instead of a more traditional type of spillway for several reasons. The spillway was located in a deep canyon, with steep sides. To increase spillway capacity for a traditional spillway to pass the PMF (Probable Maximum Flood), there had to be a tremendous amount of rock excavation done to the cliff wall. The group was looking at excavation costs in the area of $30 million.

Although it would be cheaper to build a traditional ogee weir instead of a fusegate weir system, it would ultimately cost more to excavate the rock material. The fusegate design was proposed to reduce the spillway rock excavation needed for the ogee weir, as the new fusegate weir could be constructed in the footprint of the existing spillway.

Extensive hydraulic modeling was performed to address possibilities of the gates tipping prematurely such as fluctuating river levels, seismic concerns, and the center of gravity of the gates issues. The first fusegate at Lake Kaweah tips at lake elevation 738.7 feet, almost 24 feet above the top of the gate.

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A unique concern of the design team while planning for fusegates at this particular site was that the Sequoia National Forest is upriver of the spillway. There was concern that giant sequoias floating downstream would dislodge the floodgates and cause them to tip prematurely.

To solve this problem, the team redesigned the traditional fusegate intake structure, which is typically integrated into the actual fusegate. "The traditional design was refined to incorporate a separate concrete intake structure, located above the fusegates and anchored to the rock canyon wall, with individual feeder pipes encased in the new concrete sill structure," said Robert.

The fusegates at Terminus Dam are 21.3 feet high and 38.4 feet wide. Each gate weighs approximately 900,000 pounds and contains over 4,000 pieces of reinforcing steel of varying sizes. The first gate to tip and wash downstream will do so during a 1,000 year flood event. The other gates are set to tip at increasingly larger floods until all 6 gates have washed downstream. They were constructed by Whitaker Construction Company of Santa Maria.

DWR Involvement

Once the Corps' feasibility study was completed, and the Project Cooperation Agreement (PCA) was signed, DWR's role as the nonfederal sponsor was to provide the necessary land, easements, right-of-way, and a disposal site that the Corps would require. The State was responsible for purchasing of properties and the relocation of residents and structures.

Since the level of the lake was going to rise to its new storage level of 183,300 acre-feet, relocation of existing infrastructure had to be considered. Hundreds of acres of private property, including six houses, had to be acquired, and a new bridge located upstream of the lake had to be constructed. Two sections of Highway 198 had to be raised, utilizing material that had been excavated from the project.

In particular, DWR was considering purchasing a Best Western motel in the area with the intent of razing the structure to allow for the new shoreline, but it was determined that it would be cheaper to construct a levee around the motel and a pump station to divert storm water runoff and levee underseepage away from the motel.

Robert Crane *gets a close-up view of the seismic rock anchor.*

DWR also coordinated with State, federal, and local interests to make sure that all environmental and cultural concerns were addressed. Davis Ranch, a 5000-acre parcel of land, was purchased to offset oak woodland that would be inundated. An additional 40-acre riparian habitat site on Dry Creek should be completed in late 2005. Waterfowl use shallow areas of the lake for nesting, and 1,280 acres of seasonal wetland habitat were created downstream of the dam to compensate for the loss of nesting habitat.

DFM asked the Division of Engineering to review the Corps decision and evaluate the Best Western levee integrity because DFM had some concerns about the bed of fractured granite rock located under the soil and possible seepage issues. The Division of Land and Right of Way was heavily involved in the purchase of land and transfer of property. DFM's environmental scientists provided coordination and oversight of the environmental aspects of the project, alongside federal and local agencies.

Project Completion

The fusegate weir provides a longer horizontal surface for floodwater to be passed, similar to a sharp-crested labyrinth weir, in a narrower opening than a traditional ogee spillway.

Flood protection has been significantly improved for the downstream communities of Visalia, Goshen, and Farmersville, and agricultural land located downstream. The spillway capacity is now 300,000 cfs (cubic feet per second).

"Due to the size of the Terminus Dam fusegates, more agencies are looking at this design as a potential flood control application. Prior to Terminus Dam, fusegates were being utilized on a much smaller scale. The Terminus project highlights the use of larger fusegates to pass higher flows than previously envisioned by the engineering community," said Robert.

The amount of water stored in Lake Kaweah has also been expanded about 30 percent or 43,000 acre-feet.

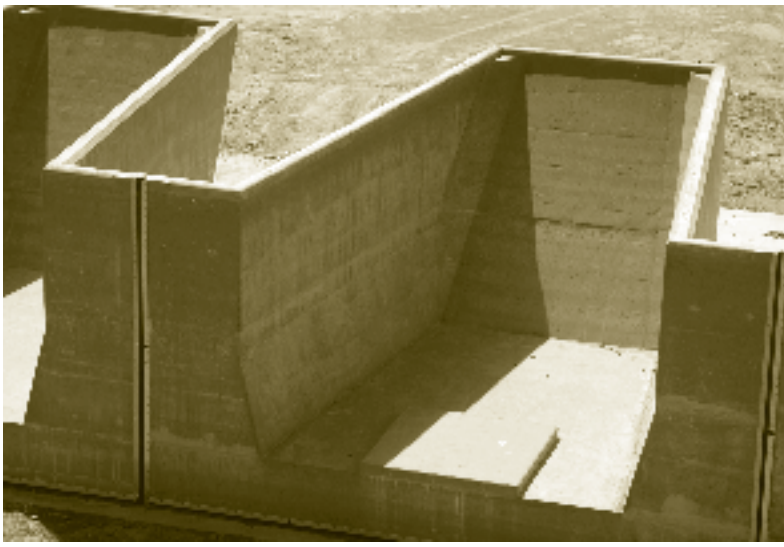
Future Applications

The water supply in 2005 has been abnormally wet, and presently, Lake Kaweah has quickly reached its new maximum pool elevation of 715 feet, up from the old 694-foot elevation, and so far, the fusegates are proving themselves to be a successful engineering project.

The Lake Kaweah Enlargement project has also been watched with great interest by engineers around the world. While Lake Kaweah is currently the home of the largest fusegates, engineers in Australia have been watching the project and are now planning a similar project with even larger fusegates.

Even though the fusegates were selected as the most economical solution to the particular situation at Lake Kaweah, the fact remains that fusegates are still relatively new technology, and how the fusegates at Lake Kaweah would function during a 1,000 year flood event remains to be seen.

"It will take us some time to buy into this type of technology, because usually we don't embrace new technology so quickly. Also, it would take a major flooding event to trigger these fusegates, and we wouldn't know that they worked until after a flood of that magnitude," said **Dave Gutierrez**, Chief of the Division of Safety and Dams.



A close-up view of individual fusegate.

Other fusegates in progress

Although the fusegates at Lake Kaweah are currently the largest in the world, engineers in Australia have recently completed model testing and are currently in the design phase on the Jindabyne fusegate project that will be 25-foot-tall concrete gates, larger than the Terminus Dam fusegates.

The project manager of the Australian Jindabyne fusegates project recently traveled to Sacramento to meet with project team members on the Lake Kaweah project to discuss the selection criteria, model tests and construction techniques that were used at Lake Kaweah. Design is scheduled to be completed in December of 2005, and construction will begin in 2006.

C.A.S.T. FOR KIDS *(Catch a Special Thrill for Kids) extends throughout the State*

by Annie Parker

Photos by DWR Photography Unit

From Lake Perris to Lake Oroville, DWR staff along with the Departments of Parks and Recreation (DPR), Boating and Waterways (DBW), Fish and Game (DFG), and the C.A.S.T for Kids Foundation held three events in 2005 at SWP reservoirs throughout the State, and helped organize the C.A.S.T. event sponsored by the Bureau of Reclamation at Millerton Lake along with providing onshore activities.

This was the first year that DWR and the other State agencies brought the C.A.S.T events to SWP reservoirs, and it was the fifth time DWR partnered with the Bureau and other water agencies to host the Millerton Lake event.

DWR first became involved in C.A.S.T when staff from San Joaquin District and the Public Affairs Office staffed booths at a C.A.S.T event at Millerton Lake, which was sponsored by the Bureau. Members of the State Water Project Recreation Coordination Committee were so impressed with the program that they worked with the C.A.S.T. program and other State agencies to bring the program to State facilities.

"I am pleased to see the high level of interest and cooperation to support this agreement. Effective and critical partnerships are also being established with local support and businesses to increase the efficiency of these programs. The many volunteers are appreciated, especially the bass clubs that generously offer their times, boats, and enterprise. The result of this effort is that the children win," said **Karl Winkler**, Chief of Central District.

Above: *These 27 C.A.S.T. participants attended the Lake Perris event in June.*

These events resulted from a Memorandum of Agreement signed by DWR, DBW, DPR, DFG, and the C.A.S.T. Foundation in October 2004 to provide a framework to create a partnership between the C.A.S.T. Foundation and the State of California.

"DWR's role in this type of project is outstanding, especially since we are being proactive with our outreach efforts. I witnessed many positive expressions and comments from the youth who attended and their parents, and I'm proud to be a part of it," said **Dorothy Benjamin**, Chief of the Water Education and Administration Branch in the Public Affairs Office. Dorothy worked on all of the C.A.S.T events and was the coordinator for the event at Lake Del Valle.

The C.A.S.T for Kids team volunteers with disabled and disadvantaged children for a special day of outdoor adventure. Children who participated enjoyed a day of fishing, prizes, trophies, activities, and special entertainment provided by State agency staff, C.A.S.T members, and volunteers from the community.

At each event, local sponsors supplied the children with disposable cameras for them to take pictures and keep, and DWR Photo Lab staff took photos of the children which were printed on site and inserted into a special plaque for the children to keep. Breakfast and lunch was also provided for everyone at the events.

Lake Perris

DWR along with the Department of Parks and Recreation and others sponsored the first C.A.S.T. event on June 4th at Lake Perris in Riverside County. It was coordinated by Raphael Samuel from DPR, and 27 youths attended the event. Headquarters and field division staff helped work at the event, including **Ann Marie Alexander, David Inouye, Kathy Simmons, Robert Fastenau, David Lara, Bud Thrapp,** and **Karl Winkler**.

The youth at the Lake Perris event were recruited from the Moreno Valley Unified School District.

"The C.A.S.T. event at Perris demonstrated that State and local governments, nonprofit organizations, and local businesses can work together efficiently to plan and stage a successful community event," said **David Inouye**, Chief of the Water Conservation and Land and Water Use Section, Southern District.

*Department of Park and Recreation's **Enrique Arroyo** and his family visit the the Coast Guard Auxiliary's booth during the Lake Perris event.*

Children enjoyed a day of fishing at Lake Perris.

*Volunteer boat owners and C.A.S.T. participant **Eric Arevala** and his sister enjoy their day at Lake Del Valle.*

Lake Del Valle

DWR along with the East Bay Regional Park District sponsored the second C.A.S.T. event on July 9th at Lake Del Valle near Livermore in the Bay Area. The event was coordinated by Dorothy, and 33 children were recruited by the ECO Village Farm Learning Center.

"The community showed a great deal of interest in having the C.A.S.T. event brought to the disadvantaged and disabled youths in the area," said Dorothy.

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***Right:** (Left to Right) At Lake Del Valle, Executive Director of ECO Village Farm Learning Center **Shyaam Shabaka** and C.A.S.T. Representative **Tony Stoltz** present awards to participants.*

***Below:** C.A.S.T. volunteers, parents, and participants attend awards presentation.*

At Lake Oroville's C.A.S.T. event, these volunteers allowed children to ride on their boats during the event.

marinas provided the boats. (The house boat that Lake Oroville Marina provided was not altered for this event. It is a disabled access houseboat available for rent to the public.) Over 100 volunteers from the local high schools and Chico State University assisted through the set up of the event, running the event and helping the children during the event. A total of 36 sponsors helped in supporting the Lake Oroville C.A.S.T. event

Lake Oroville

On September 10th, 30 children from Northern California's special education schools and the Make-a-Wish-Foundation attended the Lake Oroville's C.A.S.T. event. **John Ford**, Tour Guide with the Oroville Field Division, along with representatives from four districts, coordinated the event. Field Division staff and staff from DWR headquarters also helped out at the event.

Several local agencies and organizations assisted during the event. Oroville Fire Department, the El Medio Fire Department, Kelly Ridge CDF Station, and the Berry Creek Volunteer Fire Department provided personnel to care for the children and assist them in and out of the boats. First Responder Emergency Medical Services provided an ambulance and paramedic on site for the event. The Oroville Kiwanis Organization partnered with Albertsons Supermarket to provide a pancake breakfast to everyone that morning. The Chico Bass Conservation Club helped plan for the event and provided many fishermen and boats for the event. The club catered, cooked, and served a barbeque lunch at the end of the days fishing activities. Local

The Lake Oroville C.A.S.T. event truly represented the connection of the State and local agencies right from the beginning. The organizing committee was formed at the first meeting with representatives from DWR, including **John Ford, Ann Marie Alexander, Dorothy Benjamin, Karl Winkler, Bud Thrapp, Margie Graham, David Lara,** and **Sharon Brown**. Other representatives included **Steve Feazel** of DPR, **Anna Kastner** of DFG, **Tao Stadler** of Oroville Chamber of Commerce, and **Don Reighley,** a local representative for the Bass organization. **Heather Mello-Kamra** of the Feather River Recreation and Park District also joined the committee.

"We have a small community up here in Oroville, and many community resources are already stretched thin with local events, but everyone really stepped up and brought everything together. Even though this was our first C.A.S.T. event, I think it went really well," said John.

Millerton Lake

In addition to the three C.A.S.T. events that the Resources Agency's departments sponsored, DWR San Joaquin District partnered with the Bureau and other water agencies to host the fifth annual C.A.S.T. event on October 8th at Millerton Lake State Recreation Area in Fresno County.

"We are proud of the role we have played introducing this program to others and expanding the opportunities for many more children throughout the State to benefit from these events," said **Paula Landis**, Chief, San Joaquin District.

This event is sponsored by the U.S. Bureau of Reclamation-South-Central California Area Office, in conjunction with the C.A.S.T. Foundation.

The 50 children who participated in the event were recruited from the Make-a-Wish-Foundation, Children's Hospital Central California, Fresno County Children & Family Services, and the San Joaquin Intertribal Heritage Educational Corporation.

*At Millerton Lake, DWR and other C.A.S.T. volunteers included **Left to Right** (Back Row) **David Lara, Robin Madrid** (Dept. of Fish & Game), **Dana White, Jennifer Davis-Ferris, Tony Lam, Julie Vance** (Dept. of Fish & Game), **Joe Tapia**, & **Regina Geremia**. (Front Row, sitting) **Ann Marie Alexander, Karen Dulik** & son **Dilon**, and **Will Murray**. (Not in photo: **Angelica Giesbrecht** & husband **John**)*

San Joaquin District staff **David Lara** helped coordinate the SJD volunteers, and headquarters staff also attended.

When selecting your next Combined Federal Campaign pledge, C.A.S.T. would appreciate your support. For more information about C.A.S.T., visit their Web site at www.castforkids.org.

Lake Perris DRAWDOWN PLAN

In June of 2005, DWR's Division of Engineering completed a draft report that identified potential deficiencies in a section of the foundation of Perris Dam, an earthfill dam in northern Riverside County, under extreme seismic loading.

"DWR is taking immediate interim safety measures to reduce the seismic risk associated with Perris Dam to ensure the protection of life and property downstream of the dam," said **Richard Sanchez**, Principal Engineer with the Division of Operations and Maintenance. Rich is the Perris Dam Project Manager.

Lake Perris is the southernmost SWP facility and is the terminus for the East Branch of the California Aqueduct. It was constructed between 1970 and 1974.

In response to the study, DWR, along with Metropolitan Water District (MWD) of Southern California, which owns the water rights, started reducing the level of the reservoir by 27 feet below the spillway crest as a safety measure and will continue with additional engineering and safety analysis. MWD absorbed the extra water into their system, and the new level of the reservoir will be at elevation 1,563.

"This has truly been a team effort by the Divisions of Operations and Maintenance, Engineering, and Safety of Dams; along with our Public Affairs Office, the Legislative Office, the Office of Chief Counsel, State Water Project Analysis Office, and our Southern District," said Rich.

Above: *Aerial view of Lake Perris and Perris Dam at capacity.*

Division of Safety of Dams approved a plan to draw down the reservoir level over a period of several weeks. When completed, reservoir water storage will be reduced by about 42 percent (approximately 52,362 acre-feet) and surface reservoir area will be reduced by about 18 percent (410 acres).

Lake Perris is one of the most popular State facilities, with the Department of Parks and Recreation staff estimating that over a million visitors recreate at the lake a year.

"DWR has been working with numerous outside organizations on the Lake Perris impacts and Perris Dam safety, including U.S. and California legislators, the Governor's office, Department of Parks and Recreation, Department of Fish and Game, Department of Boating and Waterways, Metropolitan Water District of Southern California, Riverside County, and state and local emergency services offices. We have also communicated with various local government agencies and groups, and with various media organizations," said Rich.

In the month of August, DWR and local offices conducted a series of public meetings.

DWR and local organizations conducted public meetings in August and more will be scheduled.

State Water Contractor Profile:
Antelope Valley-East Kern Water Agency

by Don Strickland

Photos by Don Strickland

Antelope Valley History

Comprising about 2,000 square miles of the Mojave Desert, the Antelope Valley was occupied hundreds of years ago by the Kitanemuk Indians. Hunters and gatherers, they relied almost entirely on the land's natural productivity and did not cultivate crops or raise animals. Other tribes believed to have been in the valley at one time or another include the Yokuts, Chumash and Shoshone.

There were no permanent communities at that time. Instead, the Antelope Valley provided an Indian trade route from Arizona and New Mexico to the California coast. California's Indian population was estimated at 133,000 in 1770, just before the mission era. By 1910, the State's Indians numbered only about 16,000, and the Antelope Valley's Indian population consisted of just a few families.

The area was first visited by travelers of European origin in the 1770s. Father Francisco Garces, a Franciscan friar, reportedly traveled the valley's west end in 1776. Jedediah Smith passed through in 1827, and John C. Fremont made a scientific observation in 1844, along with his other California explorations.

After Fremont's visit, stagecoach lines plied the valley and were the preferred way of travel until Southern Pacific built a railroad line in 1876, linking northern California with Los Angeles. At that time, the area was dotted with artesian wells, and the new rail service encouraged the first large influx of settlers to the valley. Farms and towns soon occupied many areas of the valley floor.

In recent decades, the valley has become a bedroom community to Los Angeles. Major housing tract development and population growth began in 1983, and by 2004 Palmdale's population had increased to 125,000, around 10 times its former size. Neighboring Lancaster has also grown to about 125,000 since the early 1980s, around five times its former level. Major retail has followed the population influx, and new business parks advertise room for additional businesses to relocate.

Antelope Valley-East Kern Water Agency

Prior to formation of the Antelope Valley-East Kern Water Agency (AVEK), the Antelope Valley-Feather River Association was created in 1953 to encourage water imports from northern California's Feather River.

Serving a coverage area nearly 2,400 square miles in size, AVEK has the third largest water entitlement of the SWP's 29 contracting water agencies.

AVEK was chartered as a regional water agency by the State Legislature in 1959, and in 1962 its Board of Directors signed a contract with DWR for supplemental water supplies from the State Water Project (SWP).

In 1972, AVEK began receiving SWP water to augment its severely overdrafted groundwater resources.

Serving a coverage area nearly 2,400 square miles in size, AVEK has the third largest water entitlement of the SWP's 29 contracting water agencies. With more than 20 municipal customers, Edwards Air Force Base, Palmdale Air Force Plant 42, and U.S. Borax, AVEK currently uses about 75,000 acre feet per year of its 141,400 acre-foot annual entitlement.

About 70 percent of AVEK's distribution goes to municipal/industrial users with agriculture taking the remaining 30 percent. Of the municipal/industrial use, 95 percent is residential. Most of the water is treated and distributed through Domestic-Agricultural Water Network (DAWN) facilities.

The DAWN project includes more than 100 miles of distribution pipeline, four treatment plants, four 8,000,000 gallon storage reservoirs near Mojave and one 3,000,000 gallon reservoir at Vincent Hill Summit.

A seven-seat Board of Directors oversees AVEK's sprawling empire. Division 1 member **Carl Hunter, Jr.**, has served for 33 years and Division 4 representative **George Lane** for 28 years. Division 3 delegate **Frank Donato** has logged 18 years and

Left: *AVEK's headquarters building and the Quartz Hill water treatment plant, the first such facility built by the agency. With completion of a second expansion in 1989, the plant is capable of producing 65 million gallons of potable water per day, enough to meet the needs of 364,000 people.*

Right: *Clearwater Storage Reservoir, a nine million gallon tank at the Quartz Hill facility. To be less visually obtrusive, the 30-foot tall tank is mostly underground.*

Division 5's **Andy Rutledge**, the current Board President, has 17 years. Board Vice-President **Keith Dyas**, has been the Division 2 envoy for 14 years and Division 6 representative **Neal Weisenberger** has served for eight years. Relative newcomer **David Rizzo** of Division 7 has been on the board since 2001.

The general manager position is also one of strong continuity. **Russell Fuller**, a 26-year employee who grew up in the Quartz Hill community just to the northwest of AVEK's Palmdale headquarters, was named to the post five years ago. He succeeded previous General Manager **Wallace Spinarski**, who led the agency for 34 years.

Mr. Fuller recently had this conversation with *DWR News/ People* staff:

You left the area in 1968 to earn a Chemistry degree at Fresno State University, then work for the cities of Fresno and Coalinga before returning to Mojave in 1976. How did the Antelope Valley's water supply challenges change from your college days to your return?

When I left to go to college, the only source of water for the Antelope Valley was groundwater…wells. The area was pretty badly overdrafted at the time and everybody knew there was a need for other water. Actually, planning had started clear back in the 1950s to sign up to take part in the State Water Project. When I returned, I came back as the operations manager for the Antelope Valley East Kern Water Agency. By then, the dreams of those people back in the 50s to find a secondary supplemental water supply to help the groundwater basin were being realized. It took about 20 years from the time people were dreaming about a secondary supplemental water supply here in the valley—State Water Project imported water—until it actually happened. So, I returned during the final construction phases of the agency's facilities, and we actually started making deliveries in that same year that I returned to the valley, 1976.

Reportedly, at one time the water table was so high here that water actually bubbled up from the desert floor. Do you think that groundwater supplies can ever be restored to the point that you'll again see water rising to the surface?

You know, I doubt that. I don't think that'll ever happen again. My dad moved here to the valley in 1921 and had a well that would, under certain conditions, flow artesian. They had what you call a "bail" on the top and when they removed it, the water would come out of the well…there was enough pressure

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that the water would actually come out. That was 1921. A lot of wells were put into the valley back then. There was extensive alfalfa farming with flood irrigation all through the '30s and '40s. I can remember the 1950s here in the Antelope Valley and there was a lot of agriculture and a lot of alfalfa, but people were starting to convert from flood irrigation to sprinkler irrigation. Still, as a practical matter, I don't think we'll ever get enough ahead of the game where we'll have artesian springs again. I would like to see the day when we've arrested the overdraft and we're in a position that you can take the natural recharge plus the imported water and it'll equal the entire needs of the valley. I think we'll really accomplish something if we're able to do that.

With your service area population expected to nearly double to about 550,000 people over the next 20 years, are you concerned about meeting your future water needs?

Absolutely. Right now, because we don't have local banking programs…local storage capabilities…we're really only able to take advantage of just a little over half of our State Water Project entitlement. We can take full delivery during the summer, but during the winter we just don't have any place to put that water. So, what we're working on right now is developing local storage facilities that will allow us to take our rated capacity from the aqueduct year round. Then, in a good water year like the one we're in now, we hope to be able to take our full entitlement.

Are you talking about more storage tanks like the big one right outside your headquarters building?

No. It's going to take a lot more than big tanks. Our onsite tank is about nine million gallons (27.6 acre feet) and we really need room to store about 500,000 acre feet of water. That way, during wet periods, when there's water available in the Delta—when the environmental consequences in the Delta won't be so great—we hope to be able to take additional water. In drier years, we hope to be able to leave the water where it's needed and take from our own supply that we've built up during wetter times. We need at least a half-million acre feet of storage that's locally available, and the only place that we can come up with that kind of storage is by using the groundwater basin. It just so happens that the United States Geological Survey estimates that the groundwater basin here has been overdrafted to the extent of about nine million acre feet since 1920. So, there's plenty of storage capacity down there. We just need to put in the infrastructure to be able to access it.

AVEK General Manager Russell Fuller along with a seven member Board of Directors oversee AVEK.

You're in a desert here, so water conservation must be an important fact of life. How would you rate the conservation efforts of your clients and how well or how poorly do you think Californians overall are doing?

Overall, I think Californians would get a C-plus right now. I say C-plus because I think there's still a lot of room for improvement. When we look at the communities around us that have faced much bigger challenges than we have…and I'm talking about Las Vegas and Phoenix and places like that…they have really become aggressive about water conservation. I see us going to that level of effort to achieve the same conservation that we've seen in other communities in the Southwestern desert. Right now, the average annual consumption in Las Vegas for new housing tracts is about point six acre feet per year. Here in the Antelope Valley, we're at about one right now…so, you can see that there's a lot of room for improvement, and there's no reason that we can't reach the same water conservation levels that Las Vegas can.

Las Vegas has implemented programs that reward residents for reducing the amount of lawn area and for putting in water saving native plants. Is that the kind of thing you'd like to do here?

That's correct. However, some of our directors feel that those kinds of measures should not be applied automatically, that

every community should have the choice of continuing to grow and making better use of the water supply available…or, deciding that you like the lifestyle you have and not continuing to grow. I think some communities in California, and I'm looking at Santa Barbara, Ventura and San Luis Obispo, have been very successful at being able to slow down growth. I don't know that we want to do that. I know that there are people in the Antelope Valley that do want that, and some of our directors want to make sure that the people in the valley have the voice and have the choice. Very aggressive measures to conserve water will mean lifestyle changes. People like big lawns, they like big green trees, they like that lifestyle. If we're going to stretch our water supply and have a bigger community, eliminating some landscaping is an obvious thing we can do. If people say, no, I'd really rather have this community stay the same size and keep this lifestyle. We'd like people to be able to make a conscious choice and go whichever way they prefer.

Given the subject areas we've talked about, how would you describe AVEK's main mission at this point in time?

AVEK's main mission is to import water from the State Water Project to the extent that it will benefit the local area. Of course, we're really conscious that water's an extremely valuable commodity in the State and we don't want to harm other areas. We want to work with other areas and that's why conservation is so important to us. Our main mission is to import water, but not do it at the expense of the environment or other communities--while still meeting the needs of our community. I'll jump back just a second to what we were just discussing: if the desire of the community is to retain the lifestyle we now have with respect to water use and not grow, we think the people need to be able to voice that and have that choice. If the desire is to continue to grow, then it's the charge and the responsibility of the AVEK agency to keep importing water to meet the needs that materialize. We don't want to cause growth, either. That's the last thing we want to do. We want to meet the needs of growth if the people here decide that they want their community to get bigger.

San Gorgonio Pass Water Agency's New General Manager Jeff Davis

Jeff Davis began as General Manager and Chief Engineer of San Gorgonio Pass Water Agency in July.

Davis commenced his new assignment with several significant projects, such as reducing the overdraft of groundwater basins in the Pass, starting to plan, design, and construct an internal distribution system to make State Project Water more available in the Pass, starting to plan for Phase 2 of the East Branch Extension, developing a new rate structure, and initiating a strategic plan for the Agency.

"My goals for the San Gorgonio Pass Water Agency include moving us beyond a State Water Contractor to become a regional resource management agency, implementing a strategic plan, constructing a distribution system, and getting grants to do it," said Davis.

With more than 20 years experience in the water field, Davis supervised the Water Resources Institute, California State University, San Bernardino from 2000 to 2005. He also worked for the Metropolitan Water District (MWD) of Southern California from 1987-2000. At MWD, Davis was involved in the design and project management of several projects, such as chemical containment facilities at all five filtration plants, Cajalco Creek Dam and Detention Basin, service connections, and chemical feed systems at all five filtration plants. He also performed a number of area master plans and facility plans.

From 1985 to 1987, Davis worked for Metcalf & Eddy in Houston, where he was Project Engineer on a water master plan for the City of Houston. From 1982 to 1983, he worked for U.S. Department of Agriculture Sedimentation Laboratory. He started his career in 1980 designing small water and wastewater treatment plants for a consultant in Houston.

Davis, who is a registered California civil engineer, earned a bachelor's in Environmental and Water Resources Engineering from Vanderbilt University and a master's in Water Resources Engineering from Stanford University.

Davis lives in Rancho Cucamonga with his wife, two children, two dogs, and a cat.

"As an amateur water historian, I believe that we cannot plan adequately for our water future without understanding our past," said Davis. "That holds true in this region, statewide, and throughout the West."

State of the State Water Project Conference

On June 15, State Water Contractors (SWC) met with the Department of Water Resources (DWR) to discuss major issues concerning the State Water Project (SWP). The conference was held at the Airport Marriot Hotel in Ontario, California.

The day began with a continental breakfast that fostered interaction between State Water Contractors and the Department's employees. As people settled into the auditorium, the conference began.

The introduction to the conference was given by **Vince Wong**, who discussed the purpose of the conference and introduced each speaker. Speakers included DWR's **Director Lester Snow**, **Deputy Director Tom Glover**, **Deputy Director Jerry Johns,** Chief of the Division of Engineering **Ralph Torres,** Chief of Utility Operations **David Starks**, State Water Project Analysis Office Chief **Dan Flory**, California Energy Resources Scheduling's Financial Management Office staff **Veronica Hicks**, SWC **Ray Stokes** and **Brent Walthall**, and Vice President of the Metropolitan Water District of Southern California **Tim Quinn**.

After each presentation, time was reserved so the audience could ask questions to gain more information on the issues being presented.

At the State of the SWP Conference in Ontario, 125 participants attended the one-day conference.

Above: *At the State of the State Water Project Conference,* ***DWR Director Snow****'s presentations included overviews on the State Water Project and water policy issues.*

Left: *In addition to his SWP Reliability Report update,* ***DWR Deputy Director Jerry Johns*** *made a presentation on the Delta Improvement Program and the South Delta Improvements Package.*

Director Snow discussed issues such as the developing future of the SWP. His remarks began with a quick overview of the SWP, including the video "Wings over Water."

SWP issues were discussed such as Jerry John's discussion of environmental problems and major fish decline in the Delta. He stated that "three possible causes of fish decline in the Delta based on data review are toxins, invasive species, and SWP/Central Valley Project operations." He also discussed the involvement of the Interagency Ecological Program that has developed studies and surveys on fish and aquatic species in the Delta. Presenters Ray Stokes and Dan Flory discussed the review and continued refinement of DWR's billing process to the contractors.

The conference enabled State Water Contractors and DWR staff to gain a better understanding about each other, fostering a closer relationship as issues develop in the future.

Salmon Festival

On September 24th, Oroville celebrated its 11th annual Salmon Festival with lots of free smoked salmon as approximately 8,000 hungry festival-goers attended the celebration. Along with booths and exhibits by local interests through the downtown area, DWR staffed booths and led tours at the Feather River Fish Hatchery.

"I loved it. We had a great turnout. The weather was perfect and the grilled salmon was delicious," said **Amy Norris**, Office Technician with the Public Affairs Office.

Oroville Field Division Tour Guides **John Ford** and **Rosemary Martin** provided interpretation of the hatchery and its operation throughout the day. The hatchery was built by DWR to mitigate the loss of upstream spawning areas when Oroville Dam was built in the 1960s as the key Northern California facility of the SWP.

Operated by the Department of Fish and Game, the hatchery annually nurtures millions of Chinook salmon. Each spring, it returns more than 10 million salmon to nature. They reach adulthood in the Pacific Ocean, with the survivors of their life cycle migrating up the Feather River each fall.

Above: *Graphic Services Student* ***Angel Rodriguez*** *(in Salmon suit) performed in the "Journey of the Salmonoids" with* ***Carlyle Homes*** *of the South Yuba River Citizens League.*

Left: Carolyn Tucker*, Associate Governmental Program Analyst with the Public Affairs Office helped staff a booth where children could color buttons.*

For the first time at the Salmon Festival, DWR, along with the Department of Fish and Game, and the Department of Boating and Waterways (DBW) co-sponsored a free Salmon Theater. Also for the first time at the festival, a short film on the Feather River Fish Hatchery produced by DWR's Film and Video Unit was shown on a 50 inch plasma television donated by Circuit City.

Carlyle Holmes from the South Yuba River Citizens League did two performance in the morning of "Journey of the Salmonoids," a live action theater for kids. There were also three performances in the afternoon of the puppet show "AquaSMART," which is sponsored by DBW. Both of the events were extremely popular with the crowd.

"We wanted to try something a little different this year for the kids," said **Ann Marie Alexander**, AGPA with the Public Affairs Office.

California Conservation Corps, OFD, and PAO employees also staffed two kid-friendly booths where children could color buttons, get fake tattoos, and create fish bookmarks. PAO's fish simulator was available for the children to try, and there were free bookmarks and bracelets promoting water safety awareness.

Jason Newton from OFD Civil Maintenance helped with set-up, teardown, and operational logistics throughout the day. OFD's Security's **Dave Pearson** and **Melissa Nenoff** provided much needed traffic control and provided a security presence for the event.

DWR is a festival co-sponsor, along with other supporters such as the Department of Fish and Game and the City of Oroville, and local private interests, headed by the Oroville Chamber of Commerce.

Other activities around the town included crafts, vendors, food, and children's activities in downtown Oroville, a Salmon Art Show at the State Theater, special Maidu ceremonies at the Nature Center, and a 5K Salmon Run through Downtown Oroville.

"I would like to thank all of the staff from the Public Affairs Office that worked at this event and helped produce top quality materials to support one of Oroville's biggest annual events," said John.

FLOOD MANAGEMENT

Flood Management 2005 Conference

By Pete Weisser

Sacramento Mayor **Heather Fargo** welcomed 250 attendees to the Floodplain Management Association's 2005 Conference in Sacramento in September, calling flood managers "unsung heroes" and encouraging them to battle for increased public funding.

Taking note of the New Orleans flood after Hurricane Katrina, Mayor Fargo said Sacramento officials are committed to the best flood protection possible. "We don't want Sacramento to flood," she said.

In welcoming conference delegates on September 7, she noted that the Sacramento City Council the previous night had reviewed and discussed local flood preparation efforts, including evacuation planning. DWR was a conference cosponsor.

The New Orleans flood was a frequent topic during the four-day conference, attended by flood management professionals from California, Nevada and Hawaii.

But most attention focused on California's current and future flood prevention programs, funding and strategies.

*(Left to Right) Among the Floodplain Management Asso Sacramento Area Flood Control Agency **Stein Buer**, Chie agement Unit **Ricardo Pineda**, and General Manager o*

Les Harder, Chief of DWR's Division of Flood Management, briefed the delegates on current State efforts to strengthen flood control programs in the Central Valleys. The need for these improvements, he said, was documented in DWR's major report on floods, issued in January 2005, as well as in earlier DWR studies, including the 2002 Final Recommendations Report of the California Floodplain Management Task Force.

Stein Buer, Executive Director of the Sacramento Area Flood Control Agency and a former DFM Chief for DWR, updated delegates on recent year improvements in Sacramento area flood protection.

EARTHQUAKE ANALYSIS

Consulting Board for Earthquake Analysis 2005 Workshop

By Elizabeth Scott

As images of News Orleans flood victims played across television screens throughout Sacramento, the top minds in seismic research met in a conference room on 22nd and Broadway to discuss the methods used to analyze the integrity of California's dams during an earthquake.

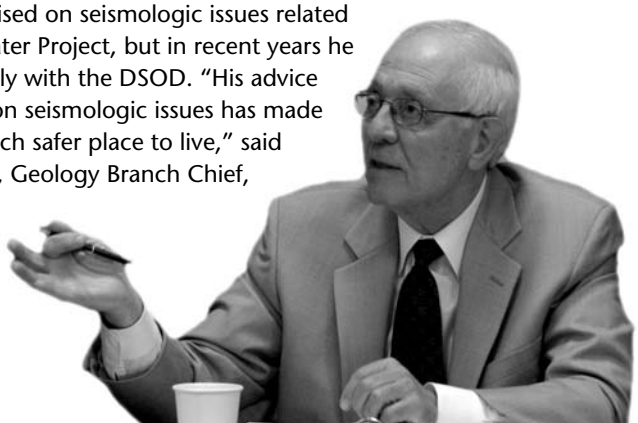
Staff from DWR's Division of Safety of Dams questioned six world-renowned seismologic experts during a workshop on August 30-31. The Department of Water Resources Consulting Board for Earthquake Analysis Workshop, a bi-yearly event, is a think tank in which experts analyze current state policies and procedures for examining and analyzing the dams. "Our primary goal was to determine whether our policies are consistent with the state of the art specific to earthquake engineering," said **David Gutierrez**, Chief of DWR's Division of Safety of Dams (DSOD). "The science is constantly evolving."

At the end of the workshop, the "Shakey Board", as the panel is informally called, studied and answered questions put forth by the DSOD during their two-day presentations. (The board received its 'Shakey' nickname ironically not from their expertise in seismic research, but from a story handed down through the years recalling a humorous dance one of their colleagues performed during a presentation over four decades ago.)

The Board is preparing a final report documenting their responses to the questions as well as their guidance on specific issues such as non-linear analysis of dams, fault displacements in dam foundations, and the use of screening tools to evaluate dams. The report will be completed by December of 2005 and will then be used by DSOD staff to move forward with the state of the art in earthquake engineering.

Workshop attendees included representatives from the DWR Divisions of Flood Management, Operations and Maintenance, and Engineering. The Federal Energy Regulatory Commission was there to hear the analysis, along with representatives from the City of San Francisco. The city is currently rebuilding the Calaveras Dam.

A special remembrance was offered for board member **Dr. Bruce Bolt** who died unexpectedly just weeks before the workshop. Dr. Bolt, a U.C. Berkeley professor, joined the consulting board in 1968 and served continually until his death. Initially, he advised on seismologic issues related to the State Water Project, but in recent years he worked primarily with the DSOD. "His advice and guidance on seismologic issues has made California a much safer place to live," said **William Fraser**, Geology Branch Chief,



***Dr. Idriss** discussing Earthquake Engineering issues.*

*ciation's Conference speakers were Mayor **Heather Fargo**, Executive Director of the f of DWR's Flood Management Division **Les Harder**, Chief of DWR's Floodplain Man- f the Reclamation Board **Pete Rabbon**.*

Buer urged flood managers to vigorously advocate flood safety strategies and compete for public budget resources to protect cities, people and property from floods. Flood prevention, he said, is a far better investment than disaster response.

All flood officials, he said, were asking themselves "Can a New Orleans flood happen here?" His response: It shouldn't.

"We simply can't allow a major metropolitan area to go under flood waters," said Buer.

DWR flood officials participated in many of the workshops and presentations.

Pete Rabbon, General Manager of the Reclamation Board, took part in a panel on flood management financing.

Ricardo Pineda, Chief of DWR's Floodplain Management unit, moderated a discussion on the appropriateness of the One Percent Standard (100-year flood). Much of that discussion focused on the need to assure accurate floodplain data.

Art Hinojosa of DFM moderated a panel on flood risk analysis and management. **Gary Bardini** of DFM moderated a session on flood warning systems.

Steve Cowdin, a Resource Program Specialist II in the Economic Analysis Section of DPLA, led a workshop examining concepts and strategies for wise use of floodplains.

As member of the Flood Management Association's Board of Directors, **Maria Lorenzo-Lee** served on the conference planning committee. DWR employees **Jerry Bare** and **Deon Jenkins** provided audio-visual equipment and services and DFM staffers assisted with a technical field tour.

The Conference was covered by media throughout California.

DSOD. "He served as a role model to me, and I suspect many other earth scientists, in his ability to effectively interact with the engineering community."

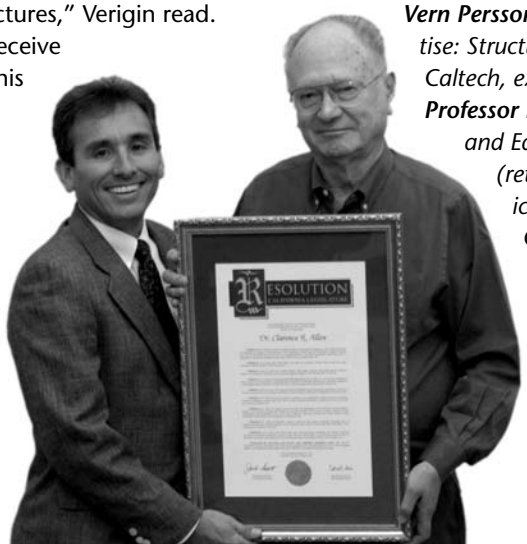
DWR Deputy Director **Steve Verigin** honored board member **Dr. Clarence Allen**'s forty-plus years of service by reading a Joint Senate and Assembly Resolution and presenting Dr. Allen with a plaque. "Since the early 1960s, when the field of Earthquake Engineering was just beginning to emerge, Dr. Allen pioneered the role of geologic contributions to the design and construction of earthquake safe structures," Verigin read. "Therefore be it resolved, Dr. Allen receive our gratitude for his leadership and his longstanding influence toward the safeguard of the State's people and their public and private property."

In his closing remarks before the packed room, Gutierrez made note of the importance of the analysis completed over the two days. Gutierrez remarked on the future impact the workshop work will have on the personal safety of all Californians. "As I have watched the events in New Orleans while we have been working here, I'm only reminded of the power of water."

A final report will be completed by the Board documenting their responses to questions DSOD put forward to them during the meeting. The Board will document guidance on specific issues, such as non-linear analysis of dams, fault displacements in dam foundations, and the use of screening tools to evaluate dams. The report will be used by DSOD staff to move forward with the state of the art in Earthquake engineering. The final report should be completed by December of 2005.

Department of Water Resources Consulting Board for Earthquake Analysis members:

***Vern Persson**, former Chief, Division of Safety of Dams, expertise: Structural Earthquake Engineering; **Professor John Hall**, Caltech, expertise: Structural and Earthquake Engineering; **Professor I. M. Idriss**, UC Davis, expertise: Geotechnical and Earthquake Engineering; **Professor Clarence Allen** (retired), Caltech, expertise: Geology & Geophysics; **Dr. Ross Boulanger**, UC Davis, expertise: Geotechnical & Earthquake Engineering; **Dr. Bill Lettis**, William Lettis & Associates, Inc., expertise: Geology & Geophysics; **Professor Anil Chopra** (not in attendance) UC Berkeley, expertise: Structural & Earthquake Engineering*



***Above: Mark Schultz**' presentation to Board Members Boulanger and Persson.*

***Right: (Left to Right)** Chief of DSOD David Gutierrez presenting **Dr. Allen** with Legislative Resolution.*

A Day in the Life of a DWR Administrative Officer

By Margarita Macias

From processing equipment requests to balancing budgets, DWR's more than 25 Administrative Officers' assignments are filled with an array of duties. With 2,769 active DWR employees throughout California, it's no wonder that labor relations, personnel, and training play a major part of DWR's Administrative Officer's assignments. Since there are 292 different DWR job classifications at offices located throughout California from Red Bluff to Glendale, every Administrative Officer's assignment can vary greatly.

To demonstrate the diversity of roles an Administrative Officer handles each day, we focused on the roles of DWR's ***Lorry Divine*** *of Northern District,* ***Paula Styler*** *of the Division of Environmental Services, and* ***Debbie Kastner*** *of Southern Field Division.*

(Left to Right) ***Lorry Divine*** *of Northern District works on contract documents with* ***Kim Hakala****.*

Eric Santos*, Chief Engineer Fisheries Vessel and* ***Paula Styler*** *discuss the San Carlos, the Department's 56-foot research vessel that recently had the superstructure rebuilt from the deck up.*

Debbie Kastner *standing on the mezzanine of Pearblossom Pumping Plant overlooking motor deck.*

Keeping the District Moving

After four years as the Division of Planning and Local Assistant's Northern District's Administrative Officer II, **Lorry Divine** knows that Administrative Officers are required to know a little bit about everything.

As the primary consultant to the District Chief and other District personnel on all administrative matters, Lorry plans, organizes, and directs six administrative staffs' activities in payroll, budget, safety, training, employee/employer relations, service and supply, duplication, facilities management, contracts, telephone and reception, motor pool, files, library, mail distribution and services. When there are meetings, training sessions or conferences, Lorry travels to Sacramento or within the 13-county areas of Northern District.

(Left to Right) ***Bea Konkler***, ***Jared Ramey***, *and* ***Lorry Divine*** *review Mobile Equipment requests for the District.*

"Although personnel matters can be demanding and very complex, the best part of my job is successfully providing quality service to the public, other State and federal agencies, the District and other Departmental staff on personnel, contracting, purchasing, budgeting, and other organizational matters," said Lorry.

Northern District's staff of 73 contains a variety of classifications, such as Engineers, Water Resources Technicians, Engineering Geologists, Land and Water Use Scientists, Research Analysts, and Environmental Scientists. Each group has its special requests.

For example, Northern District's Watermasters are dispatched away from headquarters for approximately six months each year. This requires close coordination to accommodate all of their special needs for long-term per diem, mobile equipment requests, commodity purchases, storage facilities, and communication requirements.

Lorry's familiarity with the District staff and their needs began when she joined Northern District in 1994. Her previous DWR assignments at Northern District include: Contract Analyst, Secretary to three District Chiefs, and Resources Assessment Branch Secretary.

"Although personnel matters can be demanding and very complex, the best part of my job is successfully providing quality service to the public, other State and federal agencies, the District and other Departmental staff on personnel, contracting, purchasing, budgeting, and other organizational matters,"
—Lorry Divine

"As Administrative Officer, this position provides me with daily challenges. Often, I must seek guidance and counsel from staff in Headquarters regarding personnel, labor relations, health and safety, and legal matters," said Lorry. "I am grateful for the wonderful, knowledgeable, and capable staff we have in the Department! This is one of the things I enjoy most about my job; the relationships I have established with others in DWR."

>>> continued on next page

Never the Same Day

Paula Styler, an Administrative Officer II with the Division of Environmental Services, has enjoyed the variety of her assignments during the last three years.

"Being an A.O. provides me the opportunity to meet and work with others of diverse disciplines and with all the divisions in the Department in one way or another," said Paula, who previously worked as Administrative Officer for Executive for four years. She has worked at DWR for 25 years.

With 103 permanent full-time employees and more than 50 permanent intermittent employees in a variety of job classifications, Paula's days with Environmental Services are never the same. On some days, she is a leader, planner, organizer, and controller. On other days, Paula is an advisor or counselor, and, on other days, she could be cleaning out the storage warehouse, sorting mail, or out in the field on a fish trap observing the operations.

*Paula at the helm of the San Carlos. **Eric Santos**, Chief Engineer Fisheries Vessel, points out the dashboard that was replaced and rewired. The vessel is the Department's premier water quality monitoring platform in the Sacramento-San Joaquin Delta and the San Francisco Bay system.*

"Division of Environmental Services employees perform field investigations throughout the Central Valley, particularly focused in the Sacramento-San Joaquin Delta and the Feather River. As the A.O. for Environmental Services, I especially enjoy working with the biologists, botanists, and scientists," said Paula. "They have a wonderful attitude and enjoy their work even if they have to go out in the wind, rain or heat."

Paula's assignment includes supervising and planning activities of the Administrative and Program Control Branch. She is also responsible for all contracts, budget and program control (The total Division budget is $44.2 million.), personnel, training, labor relations, LAN administration, correspondence, in-going and out-going mail, business services, including procurement of all equipment and supplies, facilities management and space needs, telecommunications, the health and safety of employees, as well as the procurement and maintenance of boats and vehicles. The Division manages a fleet of vehicles and boats, including the 56 foot research vessel, the San Carlos.

Since Environmental Services has six different facilities located in Sacramento, Antioch, Bryte, and Oroville, Paula has also traveled to each facility to ensure that administrative needs are met and also to check on facility issues.

"Being an A.O. provides me the opportunity to meet and work with others of diverse disciplines and with all the divisions in the Department in one way or another,"
—Paula Styler

Paula also assisted the Division with the proposed purchase of a single emergency response capable hovercraft to use for on-going studies in the Yolo Bypass and in meeting multiple tasks related to deep water, shallow water and mudflat transport, including emergency flood response, levee maintenance and environmental monitoring. The hovercraft can travel over shallow water, mud, and short vegetation. Due to Paula's efforts in obtaining concurrence for the purchase from the Division of Flood Management and input from DWR's Emergency Manager regarding DWR's authority as an emergency agency, an exemption for the non California-certified engine was obtained from the Air Resources Board so the hovercraft could be purchased through the Mobile Equipment Office and the Department of General Services.

Meeting the Vast Needs of a Field Division

For **Debbie Kastner**, Administrative Officer at Southern Field Division, the last 12 years have been filled with a variety of tasks from funding equipment to be used in mudslide repairs to hiring engineers from out of state and meeting their salary needs.

"As an A.O. your area of responsibility out in the field is so vast and changes daily," said Debbie. "Multi-tasking and networking play such an important part of the job."

Debbie, who has worked 16 years for DWR, has been an Administrative Officer for 12 years, serving in three field divisions: San Joaquin, Delta and Southern. As the administrative support for 188 field division employees, she supervises and administers agency policies and procedures for staff functions including program control, personnel, equal opportunity and management investigations, labor relations, delegated testing, safety and worker's compensation program, placement, training and development of personnel, public relations, budgeting, cost control, procurement, warehousing, and contract services.

At Southern Field Division, the job classifications range from Control Systems Technicians and Water Resources Technicians to Hydroelectric Plant Operators, Mechanics, and Electricians. With the vast variety of job assignments and projects, there is no doubt Debbie and her administrative staff must be able to multi-task and change priorities at the drop of a bucket.

"As an A.O. your area of responsibility out in the field is so vast and changes daily. Multi-tasking and networking plays such an important part of the job."

—Debbie Kastner

"One minute you will be doing hiring interviews and the next minute you have an emergency on the State Water Project for which you need to figure out how to purchase thousands of dollars worth of materials," said Debbie.

Debbie has traveled to all of the DWR field offices from Red Bluff to Glendale. During her field visits, she has been a training instructor for DWR classes and implementation of SAP, team member and presenter of SAP Phase One and Two, Operations and Maintenance Peer Review participant, DWR Joint Apprenticeship Committee meeting participant, and exam panel member.

When Debbie joined DWR, she started as an Office Services Supervisor I for San Joaquin Field Division. One of her first and favorite assignments was handling all human resource transactions within the field division. Debbie found that she was dealing with many different employees on a variety of subjects. It was at that time she found out that she wanted to become an Administrative Officer to learn more about DWR and the "ins and outs" of coordinating and facilitating the Administrative Branch within a State Water Project field division.

"I have been very fortunate to meet and work with many different individuals. I am definitely a people person and have enjoyed all the networking allowed throughout my travel and work," said Debbie. "Because of the vast responsibility in operations and maintenance, I have also been exposed to many different special projects, such as SAP, Peer Review, and training. I am also very proud and thankful for the capable and knowledgeable staff at Southern Field Division."

***Debbie Kastner** at Southern Field Division Operations & Maintenance Center overlooking Pearblossom Pumping Plant forebay.*

The Spanish Voice of RT

By Amy Norris

Next time you buy a ticket at an RT kiosk, press the speaker button and listen to instructions in Spanish. The musical female voice you'll hear belongs to DWR's **Erika Ruiz Garcia**.

Erika has been employed by DWR for seven years and is currently a Computer Programmer with the SAP technical team. She spends her days at DWR keeping ESS up and running. But during her time off, Erika enjoys a successful second career as a voiceover artist. She made her way into the business through her husband, Luis Garcia, who is an interpreter for "Good Day Sacramento" that airs on UPN.

Six years ago, Luis worked for Univision, and the station needed to make a public service announcement on HIV/AIDS. He volunteered Erika to appear onscreen, but she was too uncomfortable with the subject matter. Eventually the station found another actress for the spot, but Erika won the voiceover role.

Erika has a theory as to why she's found success in voiceover. "I speak good Spanish. I speak it well and I speak it correctly. I don't have a strong accent…the Spanish from Mexico is a little more neutral." Erika grew up in Durango and moved to the United States after high school to attend college and graduate school.

At the RT Tickets booth in Sacramento, you can hear Erika Ruiz Garcia's voice when you push the button for Spanish instructions.

While voiceover acting seems to come naturally to Erika, she says it also takes some work. "Voiceover is more difficult than you think.

***Erika Ruiz Garcia** records a future commercial at the recording studio in Sacramento.*

You have to be a little louder and exaggerate a little. If it's your normal voice, it sounds a little boring. The main thing is meeting the client's expectations." Her regular speaking voice sounds soft and gentle. Erika describes it as "maternal."

Clients often approach each job with an idea of how they want their advertisements to sound. Erika tries to find the right intonation and pace to meet their needs. She practices at home and now listens to commercials for their technique rather than their content.

Doing a good job has meant learning some new ways to enunciate to avoid the normal pitfalls of recording. The "P" often comes out over amplified, and mouth noises are easily heard. Sometimes it's difficult to find the flow in a long script, and voice fatigue can set in. In that case, a little tea and honey usually do the trick.

While she enjoys the business and the extra money she can make, Erika won't be giving up her day job any time soon. She likes her work with DWR and the stability it provides her growing family. On September 27th, Erika gave birth to her second child, a baby girl she named "Sophia."

Erika recorded the RT instructions in 2002. More recently, she completed a spot for Nissan of Bakersfield, and "Nuevas Voces de America," the Spanish version of "American Idol" on Telemundo. Her next project is for a "Beauty Secrets Club" that will run in Miami, Chicago and Los Angeles.

Twenty-five Years of Service

Fernando Arambula
San Joaquin Field Division
HEP Mechanic I
August 2005

Sheilah Azvedo
Fiscal Services
Accounting Technician
September 2005

Debbie Carlisle
Planning and Local Assistance
Senior Engineer
September 2005

Gary Darling
Bay Delta Office
Operations Resources Specialist III
August 2005

Marilyn Evans-Jones
Fiscal Services
Staff Services Manager I
September 2005

Dan Fua
Bay-Delta Office
Senior Engineer
October 2005

Dave Hart
Flood Management
Water Resources Eng. Associate
September 2005

Ron Jackson
San Joaquin Field Division
Utility Craftsworker
August 2005

Jim Jasinski
Oroville Field Division
Electrical Supervisor
September 2005

Marti Kie
Executive, Colorado River and
Salton Sea Office
Staff Environmental Scientist
September 2005

Thom Lewis
Public Affairs Office
Exhibit Designer/Coordinator
September 2005

Steve Payer
Public Affairs Office
Photographer
September 2005

Ricardo Pineda
Flood Management
Supervising Engineer
September 2005

Derek Yagi
Management Services
Business Services Officer
October 2005

Congratulations to the following DWR graduates:

Professional Engineers

L. Kris Brown
Safety of Dams
Engineer
October 2004

Nicholas George
Engineering
Engineer
April 2005

Philip LeCocq
Engineering
Engineer
April 2005

Dainny Nguyen
Division of Planning and Local Assistance
Engineer
June 2005

Alan Van Matre
Safety of Dams
Associate Engineer
January 2005

Professional Geologist

Mark Souverville
Central District
Engineering Geologist
June 2005

Certified Hydrogeologist

Tim Ross
Southern District
Engineering Geologist
June 2005

Birth Announcements

Congratulations to the following DWR parents:

Elvira Ramirez, a Staff Services Analyst in the Division of Management Services's Personnel Office, has a son named Cristian, who was born on July 19 weighing 7 pounds, 8 ounces, and measuring 21 inches long.

Doyle Wayne Ables, an Engineer in the Division of Planning and Local Assistance's Northern District, has a son named Benjamin John, who was born on August 23 weighing 8 pounds, 4 ounces, and measuring 21 inches long.

Bunloeurng "Boone" Lek, an Engineer in Flood Management, has a son named Lucas Khamsing Thirakul, who was born on September 11 weighing 6 pounds, 4 ounces, and measuring 19 inches long.

Anke Mueller-Solger, a Staff Environmental Scientist with the Division of Environmental Services, has a daughter named Luisa, who was born on September 21 weighing 7 pounds and 4 ounces, and measuring 20 3/4 inches long.

Retirements

After working nearly 28 years on many State Water Project (SWP) projects and other issues, Chief of Operations and Maintenance **Stephen Kashiwada** retired in November with many great DWR memories.

"From Engineer to Deputy Director, I really enjoyed the people that I've interacted with. They were all dedicated to the Department and their work and I knew I could count on them for sound advice and support," said Stephen.

As a child, Stephen became aware of DWR projects through his father, Harry, who was a Soils Technician at the Bryte Lab from 1958 to 1982. Stephen also visited Oroville and San Luis dams during their construction.

Stephen received his bachelor's degree in 1972 and master's in Civil Engineering in 1982, both from the University of California at Davis. In 1972, he became a Project Engineer for Teichert Construction in Sacramento. As Project Engineer, he was responsible for planning, scheduling and managing portions of construction for the Interstate 80/State Route 113 Interchange in Davis and SR 113 between Davis and Woodland.

In 1975, Stephen returned to the University of California at Davis as an Engineer with the Water Science and Engineering Department where he conducted surface and ground water studies and wrote a layperson's guide on water wells. In late 1976, he joined the U.S. Department of Agriculture's Soil Conservation Service, where he designed flood control projects in Southern California and a subsurface drainage project in Newman, California.

Stephen's DWR career began in 1978 as an Associate Engineer with the Civil Design Branch of the Division of Design and Construction (now Division of Engineering). As a Senior Engineer in 1983, one of his first major and most interesting projects was lead designer for the Suisun Marsh Salinity Control Gates that regulate salinity in one of the largest brackish water marshes in the nation.

"This was a very unique design, since we had to utilize innovative lightweight concrete and ship design criteria," said Stephen about the Salinity Control Gates. "We designed several concrete structures that could float, be towed to its permanent location, and then sunk to the bottom of the slough onto a prepared foundation."

Other Suisun Marsh projects included the Roaring River Fish Screen and Distribution System, the Morrow Island Distribution System, and the Goodyear Slough Outfall.

Stephen worked as Executive Engineering Assistant to Deputy Director Bob Whiting from 1987 to 1988, and then went to the Division of Planning as a Supervising Engineer and Program Manager to conduct the advanced planning studies and prepare the Environmental Impact Report for the Coastal Branch, Phase II.

In 1991, Stephen returned to the then Division of Design and Construction's Civil Design Branch as Chief of the General Engineering Section, overseeing the design of repairs and rehabilitation of SWP facilities. He became Civil Design Branch Chief in 1993 and transferred to Chief of Plants and Pipelines Branch in 1995. In 1996, Stephen was appointed by then Governor Pete Wilson to the position of DWR Deputy Director for the State Water Project. He oversaw completion of the Coastal Branch Aqueduct, design and construction of the East Branch Extension, and DWR's adaptation to deregulation of the electrical market. For four years, he also served on the Governing Board for the newly established California Independent System Operator (CaISO).

Stephen Kashiwada

In January of 2000, Stephen became Chief of the Division of Operations and Maintenance, overseeing approximately 900 DWR employees statewide. As Division Chief, he has supported the implementation of several Best Business Practices and procedures that have resulted in a more reliable and efficient operation of the SWP. In addition to completion of about half of the Future Operations projects, Stephen had hoped to oversee establishment of several new classifications crucial to the continued efficient operations of the SWP, including utility specialist, multi-skilled operator, and planner/scheduler. Due to delays caused by other project and resource priorities, it will now be up to his successor to support and oversee the establishment of these new classifications.

"Every day in Operations and Maintenance was different. Because of the unique features and resources that comprise the SWP, each day brought new issues to be addressed," said Stephen. "I enjoyed interacting and making myself visible to all division staff, especially in the field divisions. In addition to supporting and providing awareness of headquarters projects, it was important to me to let staff in the field divisions know that I cared about and was equally, if not more, supportive of their projects and concerns."

In retirement, Stephen plans to spend more time pursuing his interest in automobiles. He plans to restore his 1971 Chevrolet Vega and spend more time driving his two Porsches. In addition to playing more golf, he plans to volunteer at church and charitable organizations. He also will return to DWR as a Retired Annuitant to make technical presentations for DWR's Tour Program.

Stephen and his wife, Jean, are proud of their children's professional accomplishments. Daughter, Stephanie, is an optometrist in Los Angeles, and son, Jeff, a civil engineer with Mead and Hunt in Sacramento.

"Every time I drive by or visit SWP facilities as a retiree, I will be reminded of the many projects that I have contributed to during my career with the Department and of the friendships developed with the employees I have interacted with throughout my career." said Stephen.

Retirements

William (Bill) Perkins, an Electrical-Mechanical Testing Technician (EMTT) III with the Division of Operations and Maintenance at the Delta Field Division, retired after almost 33 years of service with the State and 29 years with DWR.

"As a journeyman Hydroelectric Plant (HEP) Electrician, I enjoyed working throughout the Delta Field Division," said Bill.

Bill started with DWR as a HEP Mechanic Apprentice in July of 1974. Two years later, he changed his apprenticeship to a HEP Electrician Apprentice. He was the first apprentice with DWR to switch his craft during the apprenticeship.

In August of 1983, he was promoted to an EMTT II and was involved in the start up of the Bottlerock Powerplant, Cordelia and Barker Slough pumping plants, and helped commission two new units at the South Bay Pumping Plant.

After his promotion to EMTT III in 1989, he was involved in the commissioning of Banks Pumping Plant Units 8-11 and the switchgear replacement project at the South Bay Pumping Plant.

In 2000, Bill was designated Plant Maintenance Super User for the SAP Phase 2A project.

Bill's retirement plans include exploring Oregon, Washington, and much of the Pacific Northwest. In May, Bill and a friend piloted a boat from the Delta to its new home in the state of Washington.

William Perkins

"I am looking forward to working on all those projects that I have been too busy to work on for so many years. I also want to do some volunteer work for the Catholic Church and the Boy Scouts of America," said Bill.

Joeston Rabara, Associate Cost Estimator with the Division of Engineering, is retiring after working 23 years for DWR and 30 years for the State.

"I'll miss the people. It's like a family here. I will also miss the quality and variation of the work. Although I worked mostly on powerplants, each powerplant is different. DWR projects and engineering technology are unique in the world," said Joeston.

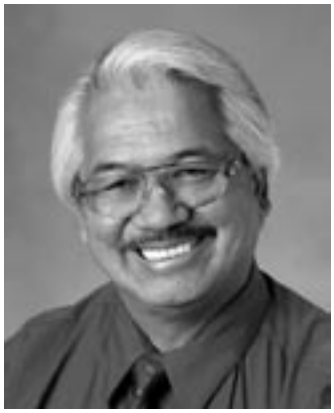
Joeston graduated with a Bachelors of Science in Engineering from the National University located in the Philippines in 1965. He worked for several international engineering firms before coming to the U.S. in 1970 on a professional working visa.

Joeston's career with the State began when he joined the Department of General Services in 1975. He spent seven years in the Division of Architecture and Design, where his first project was to work on the alteration of the State Capitol. He also worked on design projects with the Department of Motor Vehicles, State hospitals, and Employment Development Department buildings.

In 1982, he joined DWR as an Associate Cost Estimator with the Division of Design and Construction (now Division of Engineering), and he started work at the Bottlerock Pumping Plant. He has also worked at the South Geyser Thermo Powerplant, the Alamo Powerplant, and the Warne Powerplant.

"I enjoyed working on the powerplants. It's amazing how we can transport water over great distances using pumps and gravity force," said Joeston.

Other major jobs included working on the Coastal Branch Phase II project for which he won Certificate of Appreciation, the extension of the East Branch, and the Thermalito Diversion Dam.



Joeston Rabara

Joeston also spent two years working with FEMA and OES on special assignment after the 1989 Loma Prieta earthquake for which he won an Emergency Response Award from FEMA and the U.S. Army Corps of Engineers. He has won numerous awards and citations for his work with the Department and other State agencies.

His retirement plans include traveling around the world to help promote his family business.

"Our family has a sugar cane plantation business in the Philippines that our family has owned for almost a century," said Joeston.

He also plans to visit his son, a Medical Officer with the Navy, in Iraq.

Retirements

Jack Rolan, Hydroelectric Plant Electrician I, retired in June after spending 13 years with DWR's Southern Field Division.

"I plan on doing about anything I want to do, when I want to do it," said Jack. "Fishing, traveling, and the usual things retired people do."

Jack joined DWR in 1992 and spent two years on the maintenance team at Pearblossom Pumping Plant in Lancaster. He transferred to Devil Canyon Powerplant in 1994, where he maintained generators capable of producing 360 megawatts of power at any given moment. Maintaining the four huge generators meant periodic electrical maintenance, keeping them clean, and stabilizing their temperature. According to Jack, his duties were to "keep them rolling."

The generators kept rolling with Jack's help until summer 2004 when they were periodically stopped during rolling blackouts. Although he is not sure why they stopped last summer, Jack has become an expert on water to energy transfer issues.

Jack, a native of Southern California's Inland Empire, spent eight years in the military and had recently retired from Kaiser Steel Corporation when he joined DWR. He called DWR a nice place to work and says he enjoyed his 13 years.

Jack Rolan

"I will miss the people at Devil Canyon," said Jack. "I enjoy my friends and will visit once in a while, probably when others retire."

Jack's retirement plans include traveling to visit his wife's native country, Germany, and a vacation to Hawaii.

Robert W. Teal, one of DWR's veteran flood incident commanders, has retired after 26 years of State service.

If flood fighters won campaign medals, Bob, a Water Resources Engineering Associate, could wear a chestful.

He fought in some of Northern California's biggest flood battles, including Arboga near Linda in 1997, Colusa in 1998 and Upper Lake in 1995.

"When flood fighters say they've seen a lot of water go under the bridge," jokes Bob, "They mean it." Bob spent his entire DWR career working in the Division of Flood Management.

The 1997 and 1998 Northern California floods rank among the most severe on record in California.

As an Incident Commander with up to 300 or 400 workers under his control, he marshaled forces against Mother Nature in her foulest moods, when California's largest rivers, swollen by winter torrents of rain, turned destructive.

His 1997 flood service included flood battles in San Joaquin and Sutter counties, as well as the Arboga Levee near Linda and Oliverhurst in Yuba County.

Flood fights the following year found him in Colusa and Nord.

"It's a lot of responsibility," he concedes. In sunny weather, Bob's normal duties included inspection of approved construction projects throughout Northern and Central California for Reclamation Board compliance.

Robert W. Teal

When winter winds howled and rainstorms pelted the North State, that's when Bob served as Incident Commander. He has seen many improvements in flood fighting technique, including implementation of better coordinated flood management systems.

After retiring August 15, Bob continues to work in construction, this time in his private business. A graduate of Yuba City High School and a lifelong resident of Yuba City, Bob says: "I'm a Honker, born and raised."

Before coming to work for DWR 22 years ago, Bob put in four years with the Department of Food and Agriculture.

Retirements

On August 1st, **Julie Van Der Volgen**, a Staff Services Analyst with the Executive Division, will move north to live in Mt. Shasta after eight years of service with DWR and the State.

Julie started her DWR career as an Office Assistant in the Exam Unit where she learned to maneuver her way through the DWR Correspondence Manual.

"Anyone who is or has been in office support realizes that this is a major accomplishment," said Julie.

Julie was promoted to an Office Technician in the Labor Relations Office, where she assumed responsibility for the Union Leave Approval and the Billing Systems, which resulted in resolving disputed billings and reducing a sizeable backlog in union leave payments. She also maintained the database and was the contact point with field personnel for which she received a Meritorious Service Award.

She was then promoted to Staff Services Analyst in the Equal Opportunity and Management Investigations Office, where she trained employees regarding Sexual Harassment Prevention and Reasonable Accommodation.

"Getting up in front of a group and speaking, well, it was a major accomplishment that I didn't pass out," said Julie.

Julie's plans for retirement include moving up to a two and a half acre spread in Mt. Shasta that was completed in November 2004. Her husband Rich will join her when he retires.

Julie Van Der Volgen

"There's a lot of decorating and landscaping that still has to be done," said Julie. "And, of course, there will be a need to take a day here and there to do some fishing and exploring and more fishing."

After 19 years of State service with DWR, **Bill McDonald**, Chief of the Division of Engineering's Planning and Scheduling Branch, retired in September of 2005.

"I will miss most the interaction with all of the tremendous people that work and contribute to the Department of Water Resources mission," said Bill.

Bill began working for DWR in November of 1986 as an Associate Cost Estimator. He was promoted to the Chief of Cost Estimating in 1992 and Chief of the Coastal Branch Contract Administration in 1998. In addition, Bill has contributed to the many projects for the State Water Project including Devil Canyon Powerplant - Second Afterbay and the East Branch Extension - Phase I projects.

One of Bill's greatest sources of satisfaction while working in the Division of Engineering was working with the Coastal Branch Project - Phase II team. This work included completion of construction, resolution of construction contract change orders, and construction claims for the Coastal Branch Project - Phase II.

After retirement, Bill plans to complete a renovation of his 100 year old farmhouse and barn, which is located on 2.3 acre property in Spokane Valley, Washington.

"My wife and I will be moving to Spokane in early October of this year. We plan on doing a considerable amount of remodeling on the house, with the first project being re-texturizing and painting the inside walls," said Bill.

Bill McDonald

New Hires

Dion Abellon
Engineering
Engineer

Jennifer Ahlstrom
Operations and Maintenance
Administrative Officer II

Eddie Alcombright
Delta Field Division
Utility Craftsworker

Michael Anderson
Flood Management
Engineer

Stacy Aylesworth
Environmental Services
Chemist

Trang Chau
Fiscal Services
Accountant Trainee

Duwane Clark
San Joaquin Field Division
HEP* Electrician I

Craig Cross
Planning & Local Assistance
Environmental Scientist

James Curtis
San Luis Field Division
HEP* Operator

Crystal Davis
Flood Management
Office Technician (Typing)

Carmelo Di Matteo
San Joaquin Field Division
Utility Craftsworker

Robert Ellison
Delta Field Division
Utility Craftsworker

Steven Fistolera
Delta Field Division
Utility Craftsworker

Buffy Foster
Fiscal Services
Accountant Trainee

Angelica Giesbrecht
San Joaquin District
Office Technician (Typing)

Loretta Haycock
Engineering
Office Technician (Typing)

James Herota
Water Use Efficiency
Environmental Scientist

Gareth Johnson
Management Services
Office Technician (Typing)

Casey Lund
Flood Management
Utility Craftsworker

Raymond Morin
Engineering
Senior Engineer

Mohan Niroula
State Water Project Analysis Office
Assoc. HEP** Utility Engineer

Karen Parr
Executive
Staff Services Manager I

Stephen Raymond
Delta Field Division
Utility Craftsworker

Rajvinder Sahota
Operations and Maintenance
Assoc. HEP** Utility Engineer

Tejinderpaul Sandhu
Planning & Local Assistance
Engineer

Alejandra Serratos
Operations and Maintenance
Engineer

Karin Shine
Executive
Staff Counsel

Etsuko Stone
Operations and Maintenance
Research Analyst II
(Economics)

Theodore Swift
Environmental Services
Environmental Scientist

Joseph Teixeira
Engineering
Associate Cost Estimator

Vickie Traxler
San Joaquin District
Senior Environmental Scientist

Kuen Tsay
State Water Project Analysis Office
Senior Engineer

Olaf Van Ardenne
Technology Services
Assoc. Information Systems Analyst

Mally Vue
Engineering
Engineer

Elisabeth West
Fiscal Services
Accountant Trainee

Amy Young
Water Use Efficiency
Environmental Scientist

Retirements

Sol Berkowitz
San Joaquin Field Division
HEP* Mechanic I

Richard Bongiovanni
Delta Field Division
Water Resources Tech. II

Lynda Cooke
Fiscal Services
Account Clerk II

Susan Creswell
Environmental Services
Executive Secretary I

Edward Diamond
Bay-Delta Office
Engineer

Tamara Madsen
San Joaquin Field Division
Management Services Technician

John Maniord
San Joaquin Field Division
Electrical-Mechanical Testing Technician II

Sandra Merritt
Northern District
Staff Services Analyst

Perley Spaulding Jr.
San Luis Field Division
Materials & Stores Specialist

John Squires
Engineering
Staff Environmental Scientist

Paget Stipanic
Environmental Services
Associate Government Program Analyst

Craig Tavis
Oroville Field Division
HEP* Mechanic II

Robert Varozza
Engineering
Associate Cost Estimator

William Wilson
Operations and Maintenance
Senior Water & Power Dispatcher

*Hydroelectric Plant

**Hydroelectric Power

INFORMATION PROVIDED BY DWR'S PERSONNEL OFFICE

Promotions

Kathy Aldana
Operations and Maintenance
Staff Services Manager II

Vince Alvidrez
San Joaquin Field Division
Hydroelectric Plant Electrician II

Richard Barton Jr.
Delta Field Division
HEP* Mechanic I

Angela Bauman
Technology Services
Assoc. Telecom Engineer

Dennis Borrelli
San Luis Field Division
Utility Craftsworker Supv.

Jill Breault
Technology Services
Staff Information Systems Analyst

David Brown
San Joaquin Field Division
Utility Craftsworker Supv.

Bryan Carter
San Joaquin Field Division
Utility Craftsworker Supt.

Karyn Cates
San Joaquin Field Division
Office Technician (Typing)

Kevin Clark
Environmental Services
Environmental Scientist

Steve Croft
Technology Services
Systems Software Specialist

Scott Deal
San Joaquin District
Environmental Scientist

Christopher Dorsey
Safety of Dams
Senior Engineer

Juan Escobar
Central District
Senior Engineer

Janice Fetler
Technology Services
Senior Information Systems Analyst

Michael Inamine
Engineering
Principal Engineer

Shawn Jones
Safety of Dams
Senior Engineer

Rich Juricich
Planning & Local Assistance
Supervising Engineer

Gail Kuenster
Northern District
Senior Environmental Scientist

Paul Lambrecht
Operations and Maintenance
Water & Power Dispatcher

Corinne Martell
Technology Services
Systems Software Specialist II

Jacob McQuirk
Bay-Delta Office
Senior Engineer

Cindy Messer
Environmental Services
Senior Environmental Scientist

Donald Munis
San Joaquin Field Division
HEP* Mechanic II

Jacob Oxenrider
Delta Field Division
HEP* Operator

Ganesh Pandey
Engineering
Senior Engineer

Joseph Reilly
Operations and Maintenance
Assoc. HEP** Utility Engineer

Frederick Reyes
Bay-Delta Office
Senior Engineer

David Rizzardo
Flood Management
Senior Engineer

Jessica Romo
Engineering
Office Technician (Typing)

Evelyn Rucker
Executive
Office Technician (Typing)

Julie Saare-Edmonds
Water Use Efficiency
Associate Land & Water Use Scientist

James Scarborough
SWP Analysis Office
Water Resources Engineering Assoc.

Peter Scheele
Oroville Field Division
Chief, Field Division

Mark Schultz
Safety of Dams
Supervising Engineer

Ernesto Tapia
Executive
Supervising Engineer

Lam Tran
Engineering
Engineer

Stephanie Varrelman
Management Services
Staff Services Analyst

Brian Wallace
San Joaquin Field Division
HEP* Mechanical Supervisor

Clifford Winston
Engineering
Supervising Land Agent (Supv.)

Robert Wirth
San Luis Field Division
HEP* Mechanical Supervisor

John Yarbrough
Executive
Senior Engineer

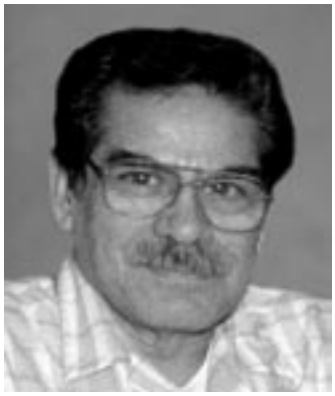
Obituaries

DWR's Watermaster **Kenneth Morgan** of Northern District passed away at age 76 on September 9.

During Ken's 43 years with the Department, he worked 27 years as a Watermaster. His career began as a Senior Engineering Aide measuring stream flows and pump diversions from Redding to Sacramento. He also worked at the Eureka Flood Center for one year. He became Chief of the Watermaster Section in 1989 and later acting Chief of the Hydrology Section.

Ken, who was born in Granada, Colorado, was a member of the Wilcox Oaks Golf Club. He enjoyed traveling the world with Elderhostel, working with computers and other electronic items, boating on the river, and working in the yard.

He is survived by his wife Claire, daughter Mary Ann, and son Kenneth.



DWR Retiree **Ponciano Hernandez** died at the age of 73 on September 25.

After a 30 years with DWR, Ponciano retired from DWR's Reprographics (now called Printing Production Services) as a Printing Trades Specialist IV in March of 1996. Ponciano joined DWR as a Reproduction Machine Operator in October of 1966. He started at a printing press, then worked himself into being DWR's only Lead Camera Man and Dark Room Technician.

"He was a professional in the work that he did for DWR. He did all the halftone pictures for DWR and other Departments newsletters until he retired," said Joe Freitas, who retired from Printing Production Services. "I am proud to have worked with and known Poncie all the time that I worked for DWR."

He is survived by his wife Ermelinda of 50 years, five children, 11 grandchildren, and 12 great grandchildren.

Obituaries

Pete Mysing, a former Department of Water Resources Comptroller passed away on July 7 at the age of 89.

He was born on March 27, 1916 in Los Angeles, California. His DWR career began as an Accounting Officer IV. He was promoted to Comptroller in 1970. He retired from DWR in 1979. Before working for the State he served in World War II as a Captain in a trucking detachment in the Army in North Africa. He graduated from UCLA with a degree in Economics. Pete also loved to travel around the world, gaining knowledge of four languages—Dutch, Spanish, German, and French. Before joining DWR, he worked as an Accountant with the State Board of Equalization and the State Department of Education. He also ran his own accounting business.

Pete will be remembered by his family and friends as a kind and gentle man with a good sense of humor.

Pete is survived by three children and their families. He was preceded in death by his grandson Jeremy Mysing and wife Janet.

James Randall, a retired Associate Hydroelectric Power Utility Engineer with the Division of Operations and Maintenance (O&M), died of cancer on August 10.

James, who was born in Detroit, Michigan in 1937, was a resident of Sacramento for 47 years. He worked for DWR for 40 years. He started with DWR in 1974 as an Associate Electric Utility Engineer with O&M. In 1994, he was reclassified as an Associate Hydroelectric Power Utility Engineer. James retired in 1998.

James was a long-time member and past president of the Camellia Society of Sacramento, and he spent 12 years serving on the American Camellia Society Board representing California.

James is survived by his wife Jackie of 48 years, two sons, two grandchildren, two sisters, mother, and mother-in-law.

Steve Makis, Jr., a retired Water Resources Engineering Associate with the Division of Flood Management died in July in Yuma, Arizona.

Steve started with DWR in 1974 as a Water Resources Technician II at Central District, where he worked until 1979.

After time away from DWR, Steve joined up with the Division of Flood Management in 1987 as a Water Resources Technician II. He was promoted in 1994 to Water Resources Engineering Associate.

Steve retired in 1995, then he returned to DWR in 1999 as a Retired Annuitant.

Steve was a veteran of the U.S. National Guard.

Maj. William J. Cooper, a DWR retired Associate Mechanical Engineer, died on July 9.

Before working for DWR for 18 years in the Division of Engineering, William served in the Strategic Air Command during the Cuban Missile Crisis in 1962. He flew KC-97's. He also flew T-29's, and C-130A's during the Vietnam War. During his days as a military pilot, William won the Air Force Commendation Medal, the Joint Services Commendation Medal, and the Air Medal.

At DWR, he worked on projects such as the California Aqueduct where he designed mechanical systems for major powerplants. He began his DWR career as a Junior Mechanical Engineer in 1980. He retired in 1998 as an Associate Mechanical Engineer.

After retiring from DWR, William liked to spend his free time volunteering at the California Railroad Museum in Sacramento. He also loved to travel, ski, and spend time outdoors.

He is survived by his wife of 31 years, Yaeko Cooper and two daughters, Daphne and Margaret Ann. He is also survived by two children from a previous marriage and one grandchild, Bill Cooper Jr. of Sacramento, Elizabeth Cooper, and Edwin Angel Cooper of Florida.

DWR MISSION *Statement*

To manage the water resources
of California in cooperation
with other agencies,
to benefit the State's people,
and to protect, restore,
and enhance the natural
and human environments.

STATE OF CALIFORNIA • DEPARTMENT OF WATER RESOURCES

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